A STUDY TO ASSESS THE EFFECTIVENESS OF ALLEN EXERCISE IN REDUCTION OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS AT SELETCTED HOSPITAL ERODE

By

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Dissertation submitted to

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In partial fulfillment of the requirement for the degree of
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In
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ANBU COLLEGE OF NURSING
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OCTOBER 2017

CERTIFICATE

This is to certify that the dissertation on " a study to assess the effectiveness on Allen exercise in reduction of muscle cramps among extubated of patients at selected hospital, erode" is a bonafide work of 301512901, II year M.Sc. (N), 2016 – 2017

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CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

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EXAMINERS,

1. ……..

2. ……..

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ACKNOWLEDGMENT

"Indeed, we (GOD) offered the trust to the heavens and the earth and the mountains, and They declined to bear it and feared it; but Man (underlook to) bear it. Indeed, he was unjust and ignorant.

BHAGWAT GEETA

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ABSTRACT

ABSTRACT

STATEMENT OF THE PROBLEM:

"A study to assess the effectiveness of Allen exercise in reduction of muscle cramps among extubated patients at seletcted hospital, erode" was conducted by as a partial fulfillment of the requirements for the degree of master of science in nursing at Anbu College of nursing, Kumarapalayam affiliated to the Tamil Nadu Dr.M.G.R. Medical University, Chennai.

MAJOR FINDINGS:

Findings related to description of sample characteristics according to their demographic variable. Distribution of sample, according to their occupational status majority of patient 19(63.3%) and least 0 (0%) were unemployment. Distribution of sample, according to their Economic status, patient were distributed more in 3000-5000/month and above is 13(43.3%), and least 1 (3.3%) were >10001/ months. Distribution of sample, according to their residency, majority of patient 19 (63.3%) in urban and 11(36.7 %) belongs to rural. Distribution of sample, according to their type of family, majority of patient 18 (60%) belonged to nuclear family and 12(40%) belongs to joint family. Distribution of sample, according to their Indication of intubation, patient were distributed more in sudden cardiac arrest and for any surgical purposes is 10(33.3%), and least 5 (16.7%) were unconscious. Distribution of sample, according to their duration of intubation majority of patient 16 (53.3%) belonged to 3-5 days and 11(36.7%) belongs to 1-2 days. Distribution of sample, according to their pain level patient were distributed more in moderate13 (43.3%), and least 6 (20%) were severe. Frequency and percentage distribution of extubated patients pre test and post test scores of level of muscle cramps that, in pre test majority (53.3%) of extubated, whereas in the post test majority (60%) of extubted patients. Allen exercise was also effective in decrease the muscle cramps among extubated patients . Paired't' value was calculated to analyze the effectiveness between pre and post scores of Muscle cramps. The paired t' value was 1.93, which is high when compared to table value 2.05. It seems that the Allen exercise was also effective in improve the muscle cramps among extubated patients. Comparison of mean, SD and mean percentage of pre test and post test scores reveals that , in pre test the highest mean score was 85.7%(3.43) in the level of forced vital capacity , whereas

in post test mean and mean percentage was 38.2%(1.53). In the area pre test mean score was respiratory sound 79%, whereas the post tests mean score was 43.2%. In the area of respiratory rate pre test mean score was 69%%, whereas the post tests mean score was 35%, In the area of oxygen saturation pre test mean score was 85.7%, whereas the post tests mean score was 33.2 %, showing a difference 169.8%. It seems that the pre test was lower than post test which showing in Allen exercise is effective in reduction of muscle cramps complications.

Association between the post test scores of extubated patients with their selected demographic variables regarding Allen Exercise on Muscles Cramps. It reveals that there was a significant association ($p>0.05$) found between the post test scores of Muscle Cramps and demographic variables like age in years, occupation status, economic status, type of family, duration of intubation and Level of Muscle Cramps. There was no significant association ($p<0.05$) found between post test scores of Muscle Cramps when compared to other demographic variables such as gender, educational status, and indication of intubation.

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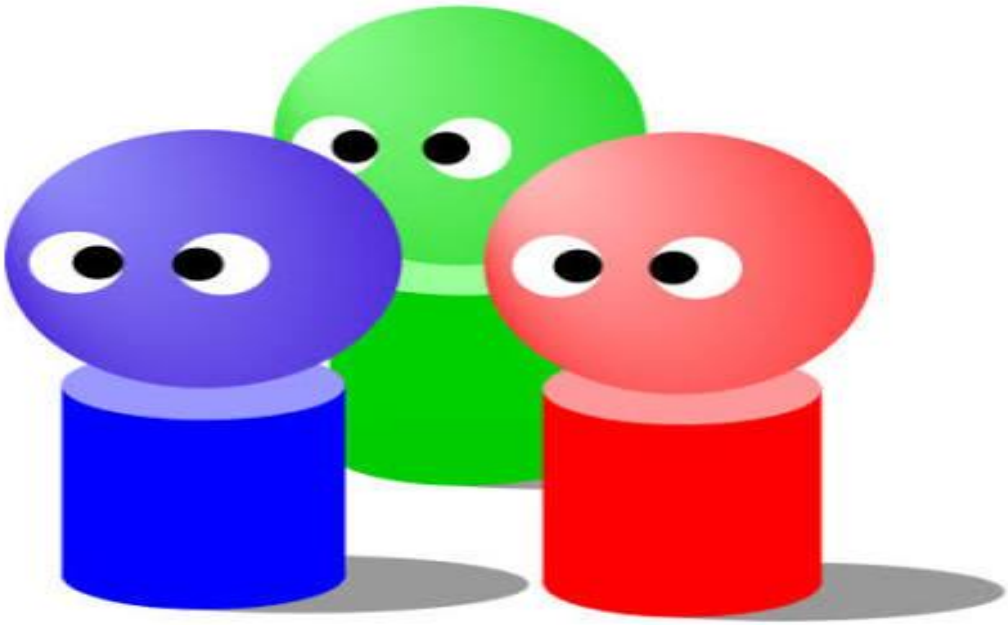

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INTRODUCTION

CHAPTER I

INTRODUCTION

"YOU CAME EMPTY HANDED, YOU WILL LEAVE EMPTY HANDED.WHAT IS YOURS TODAY, BELONGED TO SOMEONE ELSE YESTEDAY AND WILL BELONG".

-Bhagwat Geeta

Back ground of the study

Health is an invaluable part of a human beings life. Without it, people can become uninspired, de-motivated, and unable to thrive for success. Good health favours personal efficiency and contributes to an individual's lifespan and has much to do with happiness and success.

According to **WHO (2012)** Health is given its due importance in Alma Atta declaration (1978) from this emerged the symbolic goal of WHO-health is for all by the year 2000 AD. "Prevention is better than cure" is a well known concept in the present world; believe that health is more than a non-disease state. Hence preventive and promotive aspects of health are given more important than creative aspect. Health promotion has defined by the WHO as the process of enabling people to increase control over their own health.

Sherin Hassan Mohamed Mehani,(2012), This study report intermittent claudication is a chronic disabling condition causing physical limitation and pain. Lower limb exercise has consistently been shown to improve pain-free and maximal walking distances so the aim of the present study was to compare between Allen-Burger exercise alone or combined with treadmill walking exercise on posterior tibia artery diameter, walking distance and economy. Sixty male patients suffering from intermittent claudication as a result of muscle cramps participated in this study. Group (A) received Allen-Burger exercise and treadmill walking exercise, group(B)received Allen exercise, and group(C)received medical treatment. Maximal walking distance and pain free walking distance, walking economy and posterior tibia artery diameter were measured pre and post the three month period of all group.

According to **Bor-Shyh Lin,(2012).** Buerger exercise can improve the peripheral circulation of lower extremities. However, the evidence and a quantitative assessment of skin perfusion immediately after this exercise in patient with muscle cramps are still rare.

According to **Griffiths et.al.,2010** Limb exercises are performed by critical care patients with the goal of maintaining joint range of motion, improving soft-tissue Length, muscle strength and function, and decreasing the thrombo embolism risk**.** described the effect of continues passive motion of one leg in critically ill patients with respiratory failure during neuromuscular blockade, with the contra lateral leg serving as a control. This is intervention prevented muscle fibre atrophy in those highly severe illnesses.

Interventions to promote comfort can be implemented by nurses without a physicians order. One such intervention can be the use of passive range of exercise and position in the population of ventilated patients. These helps can be to manipulate the environment by the to provide a comforting place for ventilated patients.

According to **MS.E.Selmar Mellisha,(2015).** A quasi experimental study was conducted to assess the effectiveness of burger Allen exercise on lower extremity perfusion and pain among patients diabetes mellitus in both experimental and control group.

According the examined the effects of Allen exercise in reducing muscle cramp complications following diabetes mellitus, and confirmed it was useful for patients to achieve effective reduced length of hospital stay. They also acknowledged that by maximising in Allen exercise effort, Allen exercise plays a significant role in improving circulation and its complications.

According to **Meni-yen Chen (2015)** The aim of this study was to systematically review the evidence for the effectiveness of burger Allan exercise on the peripheral circulation or diabetic foot ulceration .A systemic search and 18 electronic databases were conducted. The intervention was predominantly focused on burgers exercise as an outcome. Due to high heterogeneity, data were synthesized

in a narrative format rather than statistical methods. Allen exercise can also be part of a diabetic ulcer, used to determine circulation to either rigorous exercise, or with a pharmaceutical agent such as painkiller. An **Allen exercise** is a medical device used to help patients improve the functioning of their legs. It is provided to patients who have had any surgery that function, particularly surgery to the legs themselves, but also commonly to patients recovering from cardiac or other surgery involving extended time under anaesthesia and prolonged in-bed recovery. The Allen exercise is also issued to patients recovering from rib damage to help minimize the chance of fluid build-up in the body. It can be used as well by wind instrument players, who want to improve their a blood flow. The patient exercise in from the device as slowly and as deeply as possible, then holds his/her legs for 2–6 seconds. This provides back pressure which improving cuff muscles circulation. It is the same maneuver as in yawning. An indicator provides a gauge of how well the patient's legs are functioning. The patient is generally asked to do many repetitions a day while measuring his or her progress by way of the gauge.

According to **Lawrence et al (2006)** reviewed the literature on muscle cramp interventions to prevent postoperative complications after non-cardiothoracic surgery; the findings confirmed that Allen exercise was effective in reducing risk.

According to **Pelus and Kaplan (2006)** Another study found that surgical placed some patients at high risk complications, such as those having abdominal surgery This study also highlighted that Allen exercise was an effective risk-reduction strategy.

According to **M.Vijayabarathi, V.Hemavathy(2014)** The study was aimed at evaluating the effectiveness of Buerger Allen exercise on muscle cramps process among extubated patients. Quasi experimental pre-test Post- test control design was adopted and Non probability purposive sampling technique was used to selected the samples.

Arthur W.Allen(1887-1958) Buerger exercise augmented by active exercises of the feet. These exercise consist in flexion, extension, of the ankles and are done during the phase of dependency of the as suggested.

Leo Buerger(1943), Buerger exercise is system of exercise for arterial insufficiency of lower limbs, consisting of legs elevation, followed by dependency of the legs, and finally horizontal position of legs for rest. An arterial disease of male smokers featuring obstruction of arteries, especially those supplying the legs, followed by gangrene necessitating amputation. Its also called thromboangiitis obliterans.Sufferes often continue to smoke.

NEED FOR THE STUDY

A study was conducted on circulation rehabilitation in extubated patient. In this study 30 extubated patient having severe muscle cramps. Rehabilitation included walking exercise, controlled complication and changes in life style activities. Allen exercise for 10 min duration was performed at intensive care unit every two time per day for 1week supervision. Six-minute walking distance, chronic renal disease questionnaire were measured in samples before and after intervention. The result of study show improvement of function.

The study concluded that domiciliary circulation rehabilitation for weeks resulted in significant improvement in the quality of life and exercise tolerance with an improvement in muscle.

Many studies proved that Allen exercise increases peripheral circulation, maintain cuff muscles circulation, prevent muscles cramp. Many articles say that Bubargar Allen exercise can increase peripheral circulation.

The study concluded that domiciliary muscle cramp pain rehabilitation for weeks resulted in significant improvement in the quality of life and exercise tolerance with an improvement of muscles cramp.

.Many studies proved that Allen exercise increases peripheral circulation, and maintain, increases and even prevent of muscles cramps. Many articles say that Burger Allen exercise can increase peripheral circulation. Hence, the investigator felt that there is a need to conduct a study on effectiveness of Allen exercise for extubated clients.

The present study is planned with extubated clients may have muscles strength. They may have Hospital lose the electrolytes. There will be muscle cramps developed the patients. Therefore the patients with low the level of chronic disease will cause re-intubation. So require to strengthen their capacity for maintaining physical health like any other type of muscles, muscles also can be strengthened through Allen exercise.

Allen exercise selected in this study for decreasing muscle cramps for extubated clients, can be performed expenses or complex devices and does require a intensive care unit in a hospital for the practices.

Allen exercise is a simple device. The use of this Allen exercise requires simple instructions and individual can handle it easily. The exercises are found to be practical. Hence the investigator had selected the Allen exercises as intervention straggles for prevention of muscles cramps of the patients and their effect a patient's well being through health promotion.

A review of available literature indicated that studies on the effect of the on respiratory muscles strength to the individuals admitted in the hospitals are very few. The investigator was interested to apply these two methods and compare their efficacy in patients. This particular query was generated from the investigators interest in preventive health care. There is literature related Allen exercise parately as already mentioned. But so far the investigator had not cross any published study. It is hoped that this study will open up a new horizon to the preventive and promotive care in relation to health.

Allen exercise helps to increase peripheral circulation capacity. By doing this study it helps to the clients with muscle cramps problem to promote their peripheral system system. Hence research felt a need to conduct the study to find the effectiveness of Allen exercise on extubated patients.

Even though, the recognition of need for physiotherapy in ICU growing worldwide, the kind of referral system is being practiced in Indian ICUs did not consider this in account. Since, the need for the physiotherapy is at its peak level, it is necessary for the staff nurses and other supportive staffs to practices Allen exercise in order to provide better quality of life.

Jemcy John and A.Rathiga (2015), Individuals with diabetes mellitus a two to fourfold increase in the rate of peripheral arterial disease. Peripheral arterial disease is a slow and progressive disease with systemic atherosclerosis .Lower extremity exercise helps to re-establish collateral blood flow to the legs and the heart. Primary care providers have an inevitable role to assess and diagnosis the

potential vascular complications of diabetes mellitus in initial stage and make the patient to do the Buerger Allen exercise to improve the collateral circulation. Purpose of the study is to investigate the level of lower extremity perfusion among patient with type 2diabetes and assess the effect of burger Allen exercise to improve lower extremity perfusion among patients with type- 2 diabetes mellitus admitted at tertiary hospital. Non equivalences pre test post test control group design followed to conduct the present Subject; divided 60 patients with type -2 diabetes mellitus admitted in chettinad hospital and research institute were grouped in to two groups. Subjects in experimental group were undergone intervention of burger Allen exercise under supervision for 2 times a day for 5 days and in control groups subjects under regular treatment. Demographic data and ankle brachial index scale was used to assess the lower extremity blood circulation. In arterials disease and control group24(80%), 15(50%) had lower extremity arterials disease and 6(20%),15(50%) were in border line. In experimental group there was a significant difference between the pre-test mean value0.922 with SD 0.0562and post test mean value 0.980 with SD .0407 which projects that t value 9.108 as significant at the level of $p<0.05$ .The findings of the present study revealed that here is a significant improvement in the lower extremity perfusion after doing Burger Allen exercise. Burger Allen exercise was found to be effective on improving the lower extremity perfusion among patient with type2 diabetes mellitus.

STATEMENT OF THE PROBLEM

A STUDY TO ASSESS THE EFFECTIVENESS OF ALLEN EXERCISE IN REDUCTION OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS AT SELECTED HOSPITAL, ERODE.

OBJECTIVES

1. To assess the level of muscle cramps among extubated patients before Allen exercise.

2. To assess the effectiveness of Allen exercise on muscle cramps among extubated patients.

3. To find out the association between post test score on Allen exercise.

OPERATIONAL DEFINITIONS

ASSESS:

Evaluate or estimate the nature of Allen exercise.

EFFECTIVENESS:

It is refers to prevention of muscle cramp as determined by post test score of extubated patients.

EXTUBATED PATIENT:

The patient who are removal of a tube especially from the trachea after intubation.

MUSCLE CRAMPS:

A muscle cramps is sudden and involuntary contraction of one or more of your muscles.

ALLEN EXERCISE:

Specific exercise intended to improve circulation to the feet and legs

SELECTED DEMOGRAPHIC VARIABLES

Refers the factors which are through to influence the Allen exercise prevention of muscle cramp among extubated patients.

HYPOTHESIS

H1: There is a significant level of reduction of muscle cramps after Allen exercise.

H2: There is a significant effectiveness of Allen exercise among extubated patients.

H3: There is a significant association between post test score on muscle cramping among extubated patients and selected demographic variable.

PROJECTED OUTCOME

The extubated patients will prevention muscle cramps by demonstrating Allen exercise.

CONCEPTUAL FRAMEWORK

Conceptual framework is inter-related concepts or obstructions that assembled together in some rational scheme by virtue of their relevance to a common theme. Conceptual framework helps to stimulate research and the extension of knowledge by providing both direction and inputs. Conceptual framework plays several inter- related roles in the progress of science. Their overall purpose is to make scientific and meaningful findings and also to generalize the findings.

The present study is aimed at helping the extubated patient to improve their muscle e cramps by using Allen exercise

The study is based upon **ANA Quality Assurance System**. The system`s theory is concerned with changes due to interrelation between various factors in a situation. All living system are open, in which there is a continual exchange of matter, energy and information. Quality Assurance system have vary in degree identify structure standard and criteria and Apply the process standards and criteria and Evaluate the standards and criteria in form of matter, energy and information.

Identify structure standard and criteria

According to **ANA Quality Assurance** identify structure standard and criteria can be matter, energy and information from the environment. In the present study the identify is Allen exercise to the extubated patients regarding various aspects of demographic variables.

Apply the process standards and criteria

Apply the process standards was the practicing of Allen exercise.

Evaluate the standards and criteria

The expected outcome was obtained by assessing the effectiveness through close- ended questionnaire and observation checklist. The output was considered in times of changes in post test scores obtained through closed questionnaires and skilled scores observed by checklist.

Re-evaluate

Post test scores were observed from the effectiveness of Allen exercise of the samples. In the present study, the Reassessment was considered as a process of maintaining the effectiveness of Allen exercise. It was assessed by comparing the pre assessment and post test scores, through “t” test. The effectiveness of the Allen exercise was also tested between other obtained scores of the samples with their demographic variables through chi-square and the effectiveness of Allen exercise related to the association of knowledge on practice was tested through the “r” value.

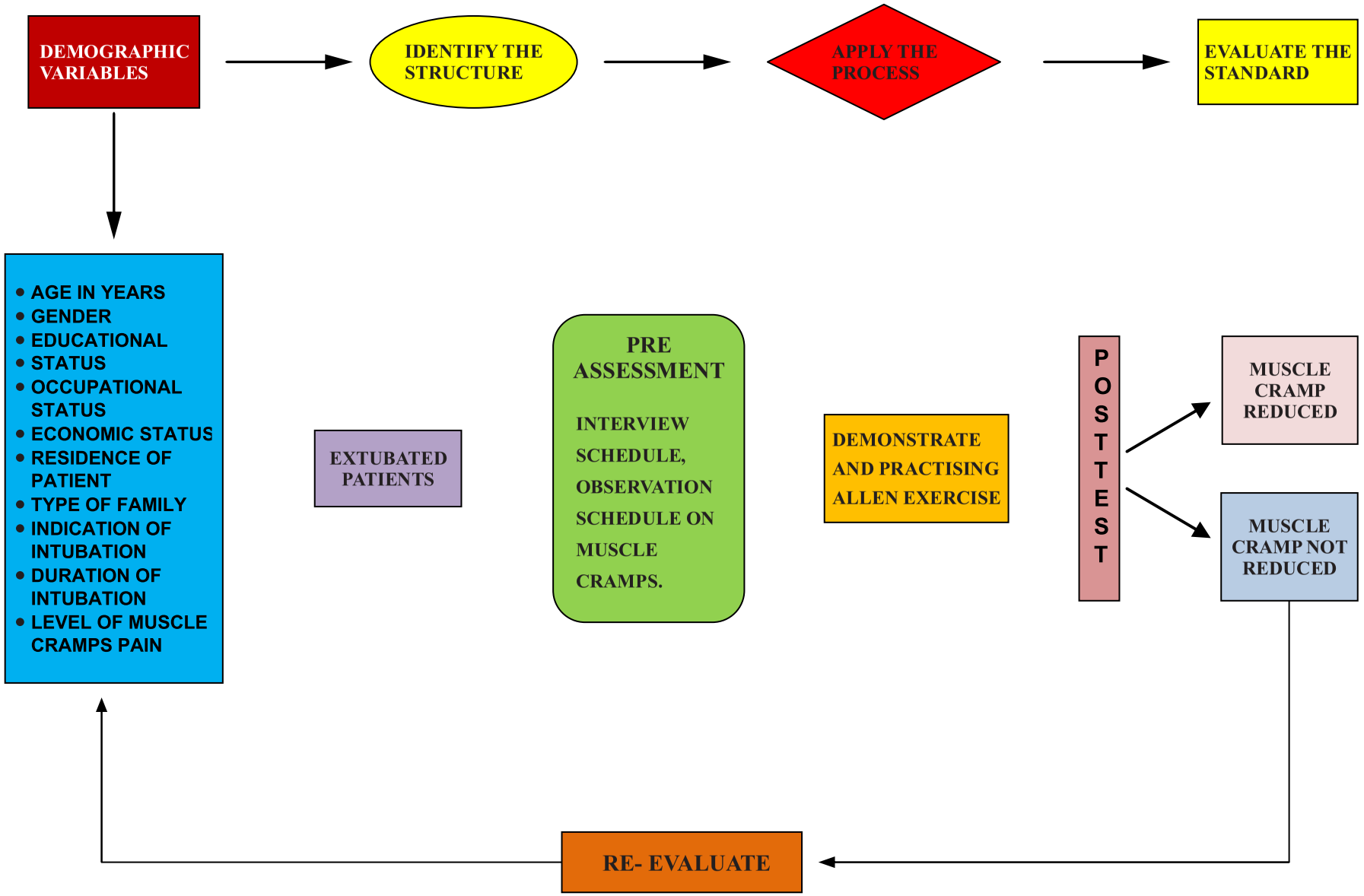
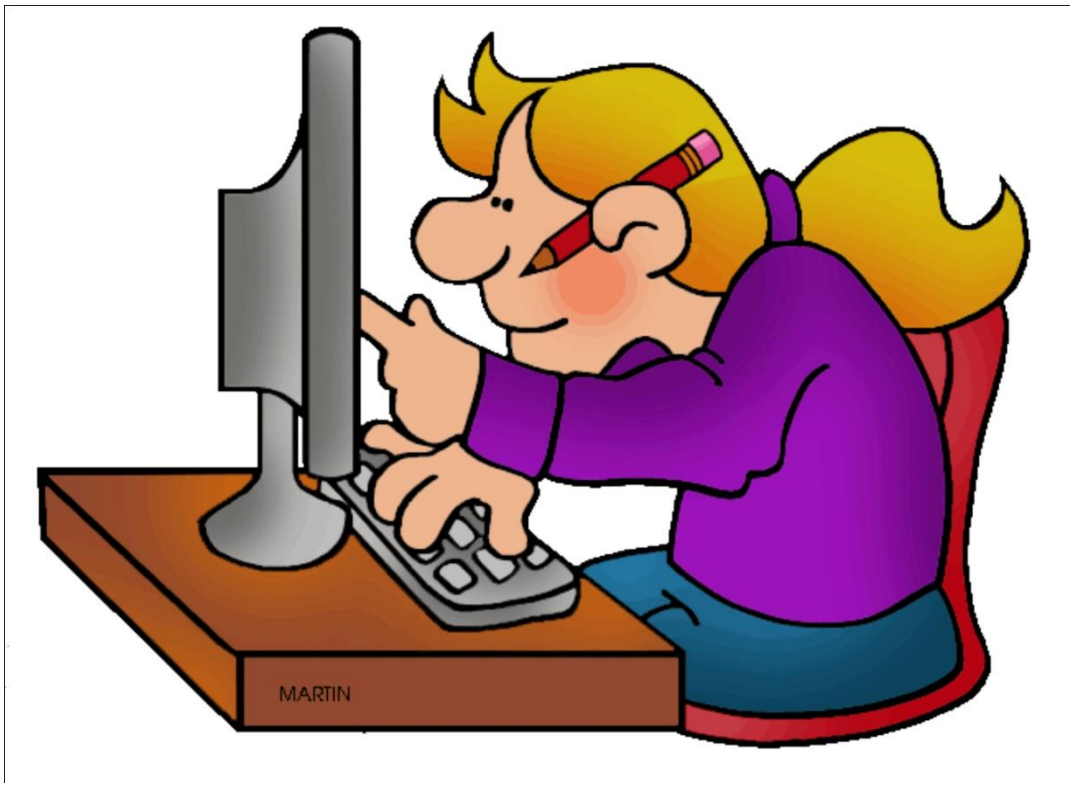


FIGURE 1.1 SCHEMATIC REPRESENTATION OF CONCEPTUAL FRAME WORK FOR PRESENT STUDY BASED ONANA QUALITY ASSURANCE MODEL (1968)



REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

"There is neither this world

Nor the world beyond

Nor happiness for the

One who doubts."

- **....Srimad BhagwatbGeeta**

INTRODUCTION

Literature is "a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews use secondary sources, and do not report new or original experimental work".

-Basavanthappa 2001

The review of literature is definition as "a summary of current theoretical and scientific knowledge about particular problem, which includes what is knowledge and not known about the problem"

-Polit and Hunger, 2003

In this study the review of literature is presented in the following three aspects:

1. Literature related to muscle cramps.
2. Literature related to Allen exercise
3. Literature related to Allen exercise and extubated patients.

I. Literature related to muscle cramps.

Ng L,KanF, YoungCA, GaleaM.(2016) A study on motor neuron disease(MND),Which is also known as a amyotrophic lateral sclerosis(ALS).Uncommon, incurable disease that affects the nerves involved in movement.MND gets worse over time and affects muscles of the limbs, speech, Swallowing and breathing, People with MND experience a wide range of symptoms, including a number physical ability limitations, pain, Spasticity cramps, swallowing problems and difficulty breathing. It is important to recognise that clinical trials may fail to show that a treatment is effective for several reasons that are not related to the effects of the treatment itself, for example when there are too few people in a trial, or investigators choose an ineffective dose of a drug. Aiming to manage symptoms of MND. We found nine reviews that fitted the objectives of this study. These reviewed randomized controlled trials (RCTs) of treatments for pain,cramps, spasticity, and sialorrhoea,and assessed the effects of mechanical Ventilation(non-invasive ventilation),enteral tube feeding, repetitive transcraninal magnetic stimulation(Rtms0 therapeutic exercise, and multidisciplinary care.

Young G,Jewell.D (2001) A study was carried out on sodium supplements may decrease the number of cramp attacks experienced by women in pregnancy but the effect is slight. Calcium is of no benefit for magnesium is stronger. Multivitamin and mineral supplements also seem to help but the preparation used contained twelve separate constituents and its not possible to discover, or indeed if there was synergy between constituents. There is a theoretical risk that sodium supplementation could raise blood pressure. It is unlikely that magnesium supplementation would be harmful at the suggested doses. Trail quality was assessed and data were extracted independently by two reviewers. Five trails involving 352 women were included. The trials were of moderate quality. The only placebo-controlled trials of calcium treatment showed no evidence of benefit. Trials comparing sodium chloride with placebo(odds ratio0.54,95% confidence interval 0.23 to1.29 and calcium with sodium chloride (odds ratio 1.23,95% confidence intervals 0.47 to 3.27) showed no evidence of benefit. Placebo controlled trails of multivitamin with mineral

Supplements (odds ratio 0.23,95% confidence intervals 0.05 to 1.01) and magnesium (odds ratio0.18,95% confidence intervals 0.05 to 0.60)provided some suggestion of benefit.

John Wiley(2011) Women may experience differing types of pain and discomfort following birth, including cramping after birth pains associated with uterine involution. To assess the effectiveness and safety of analgesia for relief of after birth pains following vaginal birth. We have included 18 studies (involving 1498 women) in this review. However, only nine of the included studies (with 750 women) reported 24 comparisons of analgesia with other analgesia or placebo and had data that could be included in our meta-analyses. The majority of studies investigated. Pharmacological analgesics and these were grouped into classes for this review. Non-steroidal anti-inflammatory drugs(NSAIDs) were significantly better than placebo at involution as assessed by their summed pain intensity differences (SPID)(mean difference (MD)4.34;95%confidence interval (CI) 2.87 to 5.82; there studies, 204 women) and summed pain relief score (MD)5.94; 95%CI 3.83 to 8.01;three studies, 204 women.

Cochrane (2012) A study was conducted we identified seven trials (Five parallel, two cross-over) enrolling a total of 406 individuals amongst whom 118 cross-over. Participants additionally served as their own controls. Enrolled women with pregnancy associated leg cramps(N=202) and four trials enrolled idiopathic .cramps suffers(N=322) including cross-over controls0.Magnesium was compared to placebo in six trials and to no treatment in one trial.were small, not statistically significant, and without heterogeneity(I2 =0%).this includes the primary endpoint, percentage change per week at four weeks –(3.93%,95% confidence interval (CI)-21.12%, to13.26%,moderate quality evidence) difference in the number of cramps .

EI-Tawil S, (2015), we identified 23 trails with a total OF 1586 participation. Fifty-eight per cent of these participants were from five unpublished studies. Quinine was compared to placebo(20 trial=543), a quinine-Vitamin E combination (There trials, n=510),a quinine –theophylline combination (one trial=77),and xylocaine injections into the gastrocemius muscle (in trails n=24).the most commonly used quinine dosage was 300mg/day(range 200 to 500mg)

II. Literature related to Allen exercise

Leo Buerger(1943), Buerger exercise is system of exercise for arterial insufficiency of lower limbs, consisting of legs elevation, followed by dependency of the legs, and finally horizontal position of legs for rest. An arterial disease of male smokers featuring obstruction of arteries, especially those supplying the legs, followed by gangrene necessitating amputation. Its also called thromboangiitis obliterans.Sufferes often continue to smoke.

Arthur W.Allen(1887-1958) Buerger exercise augmented by active exercises of the feet. These exercise consist in flexion, extension, of the ankles and are done during the phase of dependency of the as suggested.

M. Vijayabarathi (2016) The study was aimed at evaluating the effectiveness of burger Allen exercise on wound healing process among Type 2 Diabetic foot ulcer patients. Quasi experimental pre-test post-test control design was adopted and Non probability purposive sampling technique was used to select the samples. A total of 60 Type 2 Diabetes mellitus patient with foot ulcer has been taken from Rajiv Gandhi Government General Hospital Chennai, and the Burger Allen exercise was practiced for the selected samples .Condition of the foot ulcer was analyzed before and after the study. Collected data was analyzed using descriptive and inferential statistics .A high significant on an average, in experimental group, diabetic patients are having 24.6 %improved wound healing where as in control group, on an average ,diabetic patients having only 5.3% wound healing.

Chang,C-F(2015) The aim of this study was to systematically review the evidence for the effectiveness of Burgers exercise on the peripheral circulation or diabetic foot ulceration. A systematic search and 18 electronic databases were conducted. The intervention was predominantly focused on burgers exercise as outcomes. Due to high heterogeneity, data were synthesized in a narrative format rather than by statistical methods. Nine studies that covered 592 participants were selected in the analysis, of which 8 of the 9 found an effect of burgers excise on peripheral circulation. The positive effect were indicative of improving blood flow, walking ability ,reducing necrosis, reducing venous embolism, pain, swelling

,cyanosis and the bed-rest times. However, the study design and quality appraisal were limited to jaded score 2 and the sample size was small. Finding provide some evidence activity that most diabetic patients could undertake at home. This review highlighted a need for further investigation of standardized procedures of burgers exercises. More high quality studies on the prevention of diabetic foot are required regarding burgers exercise .

III. Literature related to Allen exercise and extubated patients.

Jemcy John and A.Rathiga (2015), Individuals with diabetes mellitus a two to fourfold increase in the rate of peripheral arterial disease. Peripheral arterial disease is a slow and progressive disease with systemic atherosclerosis .Lower extremity exercise helps to re-establish collateral blood flow to the legs and the heart. Primary care providers have an inevitable role to assess and diagnosis the potential vascular complications of diabetes mellitus in initial stage and make the patient to do the Buerger Allen exercise to improve the collateral circulation. Purpose of the study is to investigate the level of lower extremity perfusion among patient with type 2diabetes and assess the effect of burger Allen exercise to improve lower extremity perfusion among patients with type- 2 diabetes mellitus admitted at tertiary hospital. Non equivalences pre test post test control group design followed to conduct the present Subject; divided 60 patients with type -2 diabetes mellitus admitted in chettinad hospital and research institute were grouped in to two groups. Subjects in experimental group were undergone intervention of burger Allen exercise under supervision for 2 times a day for 5 days and in control groups subject sunder regular treatment. Demographic data and ankle brachial index scale was used to assess the lower extremity blood circulation. In arterials disease and control group24(80%), 15(50%) had lower extremity arterials disease and 6(20%),15(50%) were in border line. In experimental group there was a significant difference between the pre-test mean value0.922 with SD 0.0562and post test mean value 0.980 with SD .0407 which projects that t value 9.108 as significant at the level of $p<0.05$ .The findings of the present study revealed that here is a significant improvement in the lower extremity perfusion after doing Burger Allen exercise. Burger Allen exercise was found to be effective on improving the lower extremity perfusion among patient with type2 diabetes mellitus.

Sherin Hassan Mohamed Mehani,(2012), This study report intermittent claudication is a chronic disabling condition causing physical limitation and pain. Lower limb exercise has consistently been shown to improve pain-free and maximal walking distances so the aim of the present study was to compare between Allen-Burger exercise alone or combined with treadmill walking exercise on posterior tibia artery diameter, walking distance and economy. Sixty male patients suffering from intermittent claudication as a result of muscle cramps participated in this study. Group(A) received Allen-Burger exercise and treadmill walking exercise, group(B)received Allen exercise, and group(C)received medical treatment. Maximal walking distance and pain free walking distance, walking economy and posterior tibia artery diameter were measured pre and post the three month period of all group.

Bor-Shyh lin, (2015) Buerger exercise can improve the peripheral circulation of lower extremities. However, the evidence and a quantitative assessment of skin perfusion immediately after this exercise in patients with diabetes feet are still rare. We are recruited 30 patients with unilateral or bilateral diabetic ulcerated feet. total 30 patients with a mean age of 63.4 +13.7 years old were enrolled in this study. Their mean duration of diabetes was 13.6+8.2 years Among them, 26 patients had unilateral and 4 patients had bilateral foot ulcers. Of the 34 wounded feet,23(68%) and 9 (27%) feet were classified as Wagner class II and III, respectively. The real-time SPP burgers exercise significantly increased the level of SPP by more than 10 mm Hg (n=46,58.3 vs 70.0 mm Hg P<0.001).In terms of pre-exercise increased the level of SPP in severe ischemia (n=14,42.2 vs 64.4 mm Hg, P=0.001) and borderline- normal (n=7,52.9 vs 65.4 mm Hg, p0.028) groups respectively. However, the 20 feet with SSP levels more than 60 mm Hg were not improved significantly after exercise (n=20, 58.3vs 71.5 mm Hg, p=o.239.As to the presence of ulcers, burgers exercise increased the level of SSP in either unwounded feet (n=12,58.5 vs 66.0 mm Hg P<0.001).The majority of the ulcers was either completely healed(9/34=27%) or still improving (14/34=41%).This study

quantitatively demonstrates the evidence of dorsal foot peripheral circulation improvement after burgers exercise in patients with diabetes.

Jemcy John and A.Rathiga (2015), Individuals with diabetes mellitus a two to fourfold increase in the rate of peripheral arterial disease. Peripheral arterial disease is a slow and progressive disease with systemic atherosclerosis .Lower extremity exercise helps to re-establish collateral blood flow to the legs and the heart. Primary care providers have an inevitable role to assess and diagnosis the potential vascular complications of diabetes mellitus in initial stage and make the patient to do the Buerger Allen exercise to improve the collateral circulation. Purpose of the study is to investigate the level of lower extremity perfusion among patient with type 2diabetes and assess the effect of burger Allen exercise to improve lower extremity perfusion among patients with type- 2 diabetes mellitus admitted at tertiary hospital. Non equivalences pre test post test control group design followed to conduct the present Subject; divided 60 patients with type -2 diabetes mellitus admitted in chettinad hospital and research institute were grouped in to two groups. Subjects in experimental group were undergone intervention of burger Allen exercise under supervision for 2 times a day for 5 days and in control groups subjectsunder regular treatment. Demographic data and ankle brachial index scale was used to assess the lower extremity blood circulation. In arterials disease and control group24(80%), 15(50%) had lower extremity arterials disease and 6(20%),15(50%) were in border line. In experimental group there was a significant difference between the pre-test mean value0.922 with SD 0.0562and post test mean value 0.980 with SD .0407 which projects that t value 9.108 as significant at the level of $p<0.05$ .The findings of the present study revealed that here is a significant improvement in the lower extremity perfusion after doing Burger Allen exercise. Burger Allen exercise was found to be effective on improving the lower extremity perfusion among patient with type2 diabetes mellitus.

METHODOLOGY

CHAPTER III

METHODOLOGY

Research methodology is a way of systematically solving the research problem. It is a science of studying how research is done scientifically.

-Abdullah 2011

The research methodology of research indicates the general pattern of organizing the procedure for gathering valid and reliable data for the purpose of investigation

- **Polit and Beck 2004**

The present study was conducted "**A STUDY TO ASSESSS THE EFFECTIVENESS OF ALLEN EXERCISE IN REDUCTION OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS AT SELETCTED HOSPITAL, ERODE."**

The chapter throw light on the research methodology adopted for the study which includes research design, schematic representation of research design, variables, setting, population, ethical consideration, sampling techniques, inclusion and exclusion criteria, sample size, development and description of instrument, data collection procedure and plan for data analysis.

RESEARCH APPROACH

The research approach adopted for this study was an evaluative approach. Evaluative approach helps to explains the effects of independent variables on the dependent variables. This study manipulation, control and no randomization. This approach is consider by the investigator as the most suitable one for the study.

RESEARCH DESIGN

Research design refers to the researchers overall plan for obtaining answers to the research question and it spells out strategies that the researcher adopt to develop information that is adequate, accurate, objective and interpretable.

Research design provides a backbone structure of the study. It determines how the study will be collected and when intervention, if any, are of implemented.

A pre experimental research design with one group pre test and post test approach was used to evaluate the effectiveness of the Allen exercise for the present study.

Tab: 3.1 Schematic representation of research design.

The design to be used is depicted as follow:

A pre- experimental one group pre and post test design was adopted for this study.

Research design	O_1	x	O_2

O_1 x O_2

O_1 – Pre test to assess the level of muscle cramps of extubated patients

X – Intervention (practicing on Allen exercise)

O_2- Post test to assess the effective of Allen exercise among extubated patients.

Setting of the study

The study setting is the location in which the research is conducted. It could natural, partially controlled, or highly controlled. The selection of setting is based on the feasibility, availability of subjects and geographical proximity.

-Suresh K Sharma 2013

Setting refers to the physical location and conditions in which data collections has been taken place.

This study was undertaken in selected hospital Care 24 Medical Centre &Hospital, Erode.

VARIABLES

Variables are qualities, properties or characteristics of person, things or situations that change or vary. **VARIABLES** at different level of abstraction that are concisely defined to promote their measurement or manipulation within the study.

-Chin and Karmer 2010

Independent variable**s**:

If the independent variable is referred to as an "explanatory variable" (see above) then the term "response variable" is preferred by some authors for the dependent variable.

-Basavanthappa B.T 2007

In this study independent variables refers to Allen exercise.

Dependent variables:

A dependent variable is also known as a "response variable", "regressand", "measured variable", "responding variable", "explained variable", "outcome variable", "experimental variable", and "output variable"

The variables that is hypothesized to depend on or caused by another variable, the independent variables.

-Basavanthappa B.T 2007

In this study dependent variables refers to Reduction of Muscle Cramps the Allen exercise.

Demographic variable

The extraneous variable under the study are age in years, sex, occupational status, educational status, type of family, indication of intubation, Duration of Intubation, Level of Muscle Cramps Pain, regarding extubated patient.

POPULATION

Population refers to the entire set of individual or objects having some common characteristics

-Shivani Sharma 2011

Target population:

Target population consists of the total number of people or object which are meeting designated set of criteria

Suresh K Sharma 2012

The population for the study were the **extubated patients**

Accessible population:

It is aggregate of cases that confirm the design criteria and are also accessible as subject for the study.

Suresh K Sharma (2012)

The accessible population for this study were the **extubated patient in Care24 Medical Centre & Hospital, Erode,** who meets the inclusion criteria.

Sample

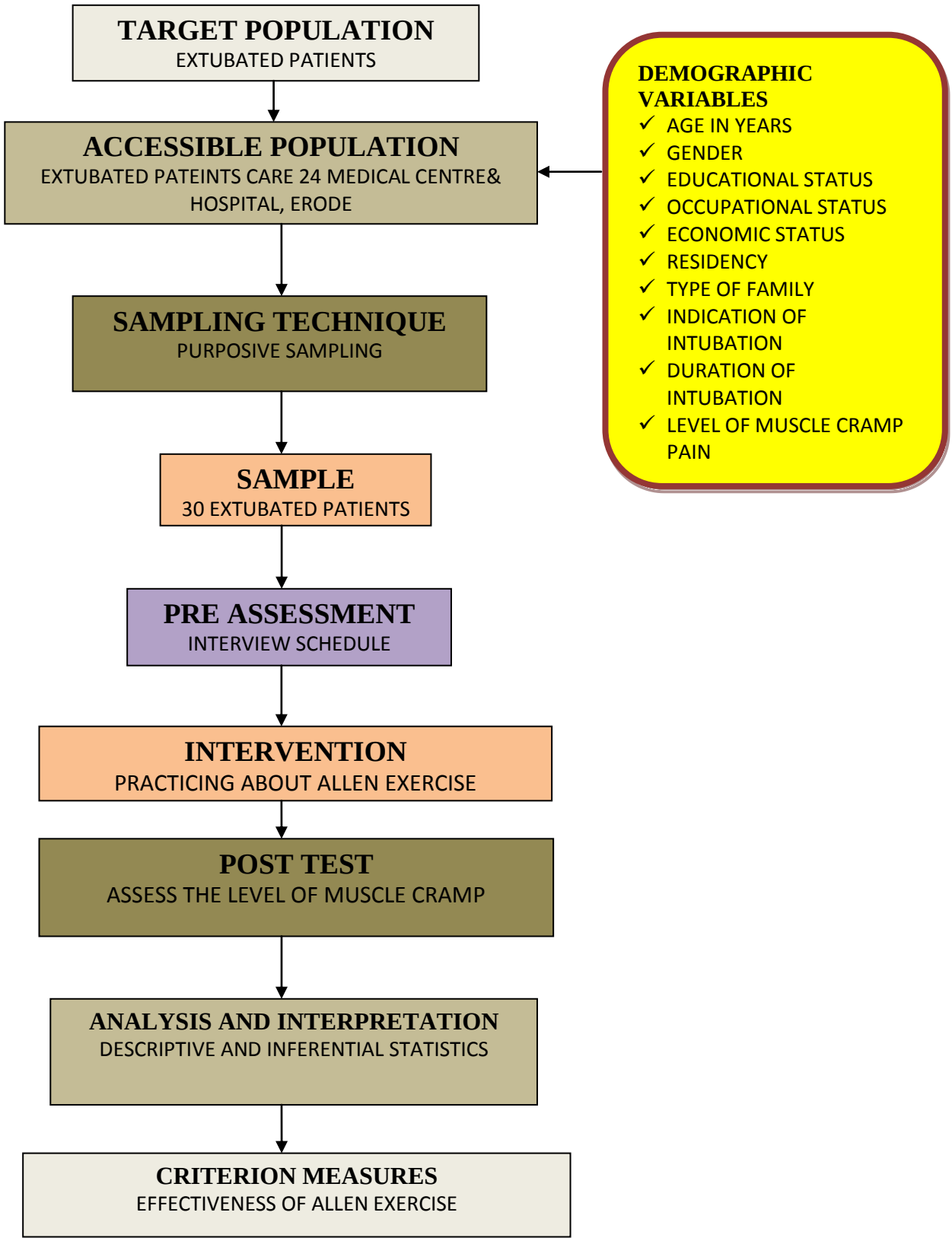
Sample is a small portion of the population selected for a particular study and the members of the sample are study subjects.

The sample selected for the present study were the **extubated patients in Care24 Medical Centre & Hospital, Erode.**

Sample size

Sample is normally decided by nature of the study, nature of population, type of sampling , tool variables, statistical test adopted for data analysis sensitivity of the measure.

Sample comprised of **30 extubated patients in Care24 Medical Centre & Hospital, Erode**.



3.1 SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

Sampling technique

Sampling technique is the procedure that the researcher adopts in selecting the samples for the study.

-Suresh K Sharma 2010

Purposive sampling technique was used to select the sample for this study.

Criteria for selection of the sample:

The sample selection is based on inclusion and exclusion criteria.

Inclusion criteria for sampling

1. Extubated patients only
2. Extubated patients who are admitted in care 24 medical centre & Hospital.
3. Extubated patients who are willing participate the study.
4. Extubated patients age between 21to 60 years.
5. Both male and female extubated patients include in the study.

Exclusion criteria for sampling

1. Patient who have
    - ✓ Neurological problem
    - ✓ severe respiratory distress
    - ✓ uncooperative patients
    - ✓ on auscultation severe stridor crackles pleural friction rub of extubated patients

Development of the tool

Tool is an act as an instrument to assess and collect the data from the respondent of the study

-Polit and Hunger 2004

There are two section of tool were used. They are,

Section A: Demographic variables

It consists of demographic characteristic of extubated patients

1. Age in years
2. Gender
3. Educational status
4. Occupational status
5. Economic status
6. Residency
7. Type of family
8. Indication of intubation
9. Duration of intubation
10. Level of muscle cramps pain

Section B: Observation Tool of Allen exercise

Allen exercise test was done by using Allen exercise. Instruction was given to the patients by step by steps then regular 2 times practising done for 7 consecutive days. The value taken for the study purpose includes Level muscle cramp pain. The average time taken to administer Allen exercise for 15 mts.

VALIDITY AND RELIABLITY

Validity

Validity refers to how well a test measures what it is purported to measure.

-Polit and Hunger 2010

The content validity of the demographic variables, observation tool on pulmonary parameter grading and their level validated in consultation with guide and field experts are doctors, statistician and nurse specialist. Tool was modified according to the suggestion and recommendation of the experts.

Reliability

Reliability is a degree to which the assessment of tool produces stable and consistent results

-Polit and Hunger 2010

The reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring over a period of time. The reliability of Allen exercise was established by Spearman brown formula. The second test was conducted 7 days after the first test to same group of patients. Then the scores obtained were correlated. Reliability was computed using Spearman brown formula and it was found to be (r = 0.94) the tool was found reliable for the study.

PILOT STUDY

Pilot study is a small version or trial run done in preparation for a major study.

-Polit and Hungler, 2010

A pilot study, pilot project or pilot experiment is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale research project**.**

-Suresh K Sharma 2007

Purpose:

1. To assess the effectiveness of the data collection plan.
2. To identify the inadequacies of the plan and make the modification as required.
3. To find out the feasibility of conducting the final study.

Prior permission or the authorities was obtained, and individual consent was taken from 5 the samples who were selected. A sample of extubated patients in the group purposive sampling. Interview and muscle cramp pain test were done Allen

exercise was practising for 7 days (2 times per day) using demonstration and charts. After 7^{th} day post level of muscle cramp pain test was done and result obtained. The paired' test result was 5.45 (table value 2.7), $p<0.05$ significant. So Allen exercise was effective to extubated patients.

DATA COLLECTION METHOD

Data is the piece of information obtained in the study. Data collection is the gathering of information needed to address the research problem.

-Suresh K Sharma 2010

Data collection is the precise, systematic gathering of information relevant to the research sub problems, using methods such as interviews, participant observation, focus group, discussions and case histories,

-Burns & Groves 2005.

Permission from the concerned authority

Formal permission was obtained from managing director and intensivisit of Erode emergency care Hospital, Erode.

- **Pre test**

  Extubated patients were requested to complete interview schedule, before practising Allen exercise.

- **Implementation of Allen exercise**

  Allen exercise was practicing by extubated patients.

- **Post test**

  Extubated patients were requested to complete the practising of Allen exercise for 7 days (2 times per days).

Plan for data analysis

- Assess the level of pulmonary function among extubated patients before and after using of Allen exercise are analyzed by frequency and percentage distribution.

- To find the effectiveness of Allen exercise on pulmonary function among extubated patients are analyzed with mean, standard deviation, mean percentage and paired ‘t’ test

- To find the association between demographic variables and level of muscle cramps among extubated patients is analyzed by chi square test.

DATA ANALYSIS AND INTERPRETATION

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

Analysis is the systematic examination and evaluation of data or information, by breaking it into its component parts to uncover their interrelationships.

-Ba savanthappa 2010

Analysis of data is a process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making.

-Polit and Hungler 2004

The analysis and interpretation of data of this study was based on the data collected from extubated patients regarding level of muscle cramp. The results were computed using descriptive and inferential statistics.

The data collected were analyzed and presented in the following sequence:

Section A: Description of sample according to their demographic variable

Section B: Assess the level of muscle cramp among extubated patients before and after practising of Allen exercise.

- Frequency and percentage distribution of pre and post test scores of level of muscle cramp among extubated patients.

Section C: Effectiveness of Allen exercise on muscle cramp among extubated patients.

- Paired 't' value of pre test and post test scores of muscle cramp among extubated patients.
- Area wise comparison of mean, standard deviation, and mean percentage of pre test and post test scores of level of muscle cramp among extubated patients.

Section D: Find out association between demographic variables and level of muscle cramp among extubated patients.

- Chi square value of association between post test scores of muscle cramp among extubated patients with their selected demographic variables.

SECTION A: DATA ON BACKGROUNG FACTORS OF PULMONARY FUNCTION AMONG THE EXTUBATED PATIENTS.

TABLE 4.1: Frequency and percentage distribution of background of extubated patients

n=30

S.No	Demographic Variables	Frequency	Percentage%
1	Age in Years		
	a.21-30 years	4	13.3%
	b.31-40 years	1	3.3%
	c.41-50 years	8	26.7%
	d.51-60 years	17	56.7%
2	Gender		
	a. Males	15	50%
	b. Females	15	50%
3	Educational Status		
	a. No formal education	13	43.3%
	b. Primary education	9	30%
	c. Secondary education	3	10%
	D .Higher secondary education	2	6.7%
	e. Degree	3	10%
4	Occupation Status		
	a. Unemployed	0	0%
	b. Sedentary	2	6.7%
	c. Self employed	9	30%
	Others	19	63.3%
5	Economic Status		
	a.3000-5000/month	13	43.3%
	b.5001-7000/month	8	26.7%
	c.7001-1000/month	8	26.7%
	d.>10001/month	1	3.3%
6	Residence of patient		
	a. Rural	11	36.7%
	b. Urban	19	63.3%
7	Type of family		
	a. Join family	12	40%
	b. Nuclear family	18	60%
8	Indication for Intubation		

	A .Sudden cardiac arrest	6	20%
	b. Dyspnoea	9	30%
	c. Unconscious	5	16.7%
	d. Surgical purpose	10	33.3%
9	Duration of Intubation		
	a.1-2 Days	11	36.7%
	b.3-5 Days	16	53.3%
	c.6-8 Days	3	10%
	d.>8 Days	0	0%
10	Level of Muscle Cramping Pain		
	A .Mild	11	36.7%
	B .Moderate	13	43.3%
	C. Severe	6	20%

Table 4.1 reveals the background factors of extubated patients such as age, gender, educational status, occupational status, economical status, residual area, type of family, indication for intubation, duration of intubation, and Level of muscle cramps pain.

Distribution of sample, according to their Age, patient were distributed more in 51 – 60 years is 17(56.7%), and least 1 (3.3%) were 31-40 years.

Distribution of sample, according to their sex majority of patient 15 (50 %) belonged to males and 15(50 %) belongs to females

Distribution of sample, according to their education status, patient were distributed more in no formal education education is13 (43.3%), and least 2 (6.7%) were Higher secondary education.

Distribution of sample, according to their occupational status majority of patient 19(63.3%) and least 0 (0%) were unemployment

Distribution of sample, according to their Economic status, patient were distributed more in 3000-5000/month and above is 13(43.3%), and least 1 (3.3%) were >10001/ months.

Distribution of sample, according to their residency, majority of patient 19 (63.3%) in urban and 11(36.7 %) belongs to rural.

Distribution of sample, according to their type of family, majority of patient 18 (60%) belonged to nuclear family and 12(40%) belongs to joint family

Distribution of sample, according to their Indication of intubation, patient were distributed more in sudden cardiac arrest and for any surgical purposes is 10(33.3%), and least 5 (16.7%) were unconscious

Distribution of sample, according to their duration of intubation majority of patient 16 (53.3%) belonged to 3-5 days and 11(36.7%) belongs to 1-2 days

Distribution of sample, according to their pain level patient were distributed more in moderate13(43.3%), and least 6 (20%) were severe.

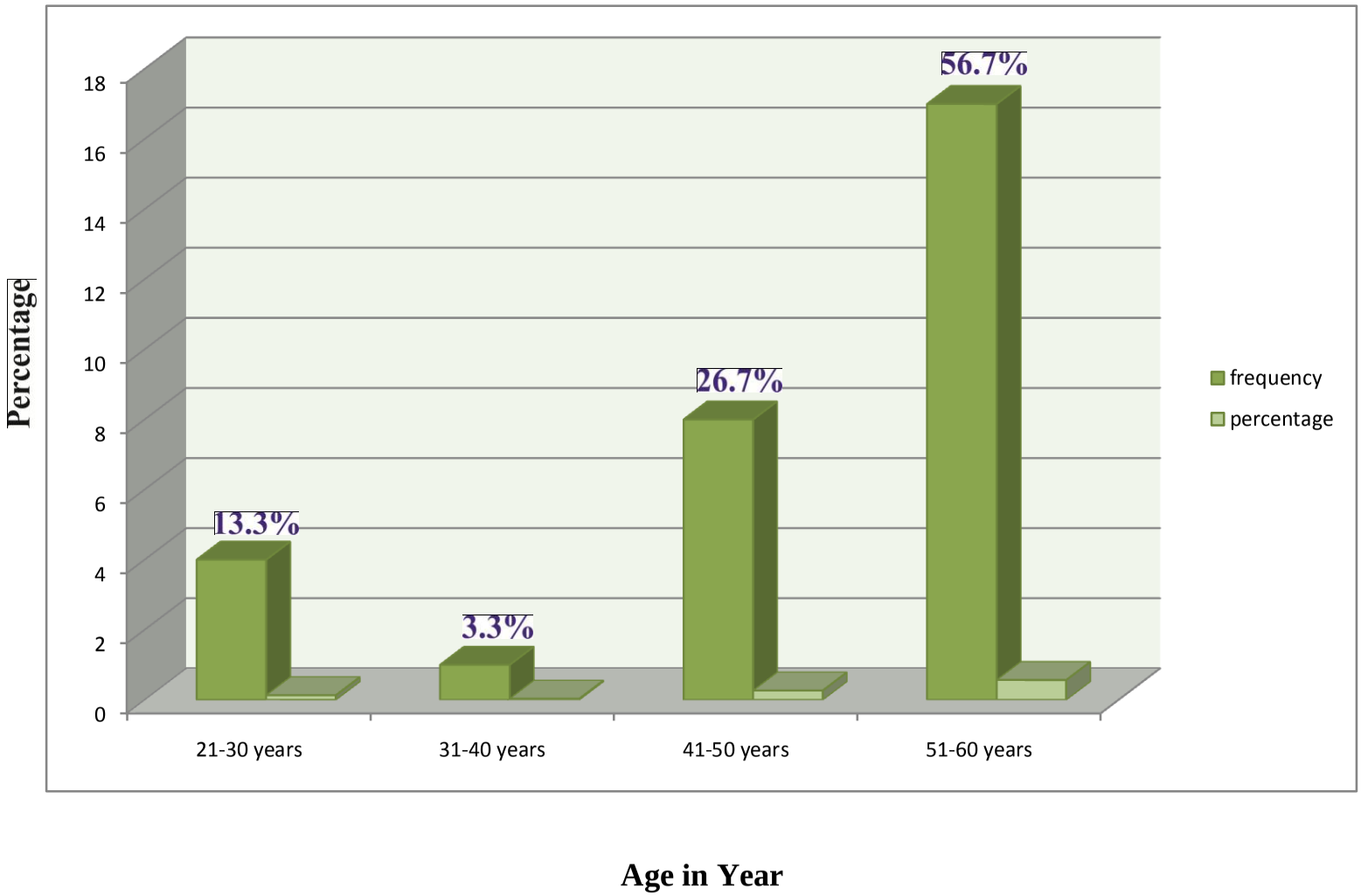


Figure 4.1 Bar diagram showing frequency and percentage distribution of extubated patients according to age in years.

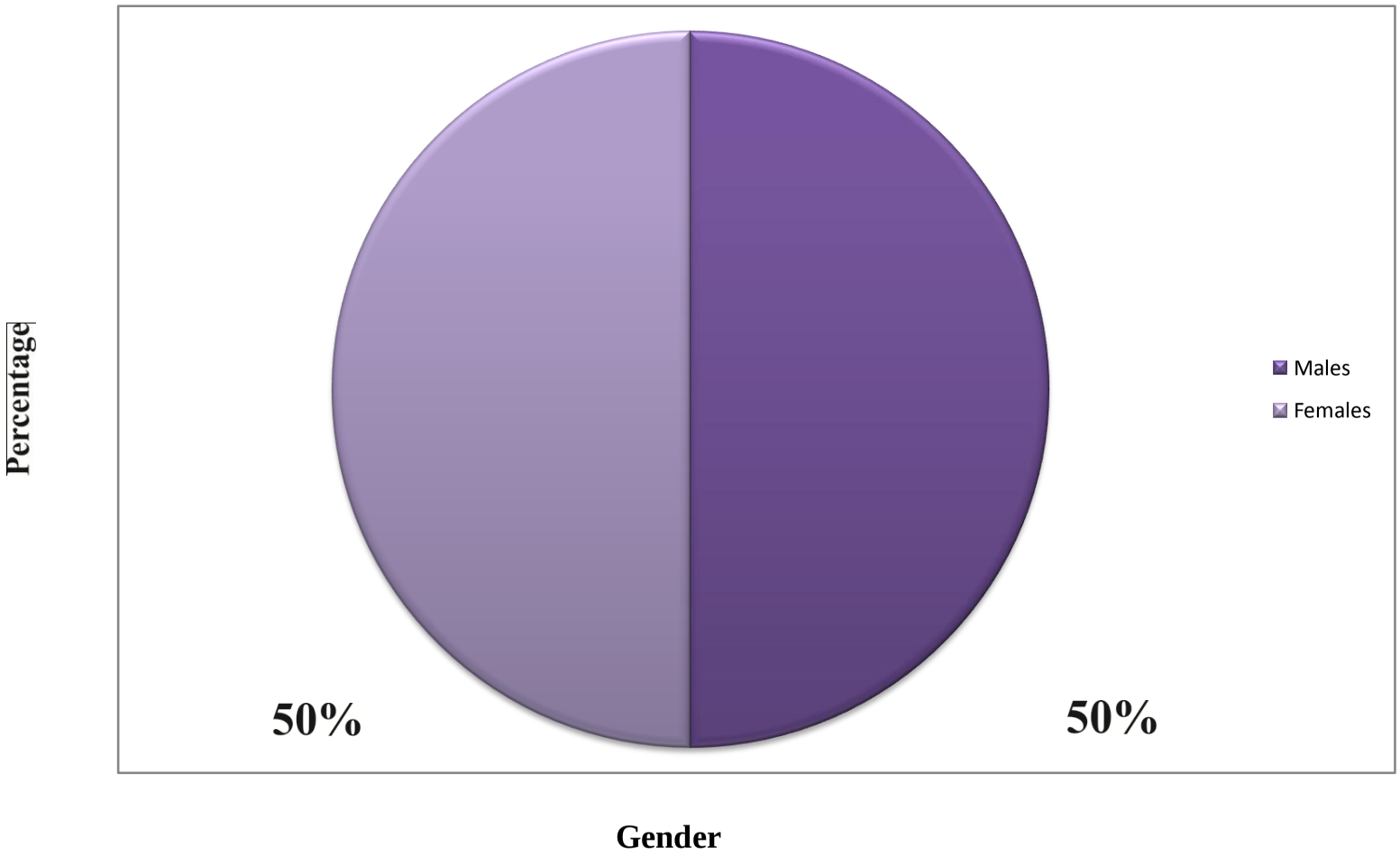


Figure 4.2 Pie diagram showing frequency and percentage distribution of extubated patients according to sex.

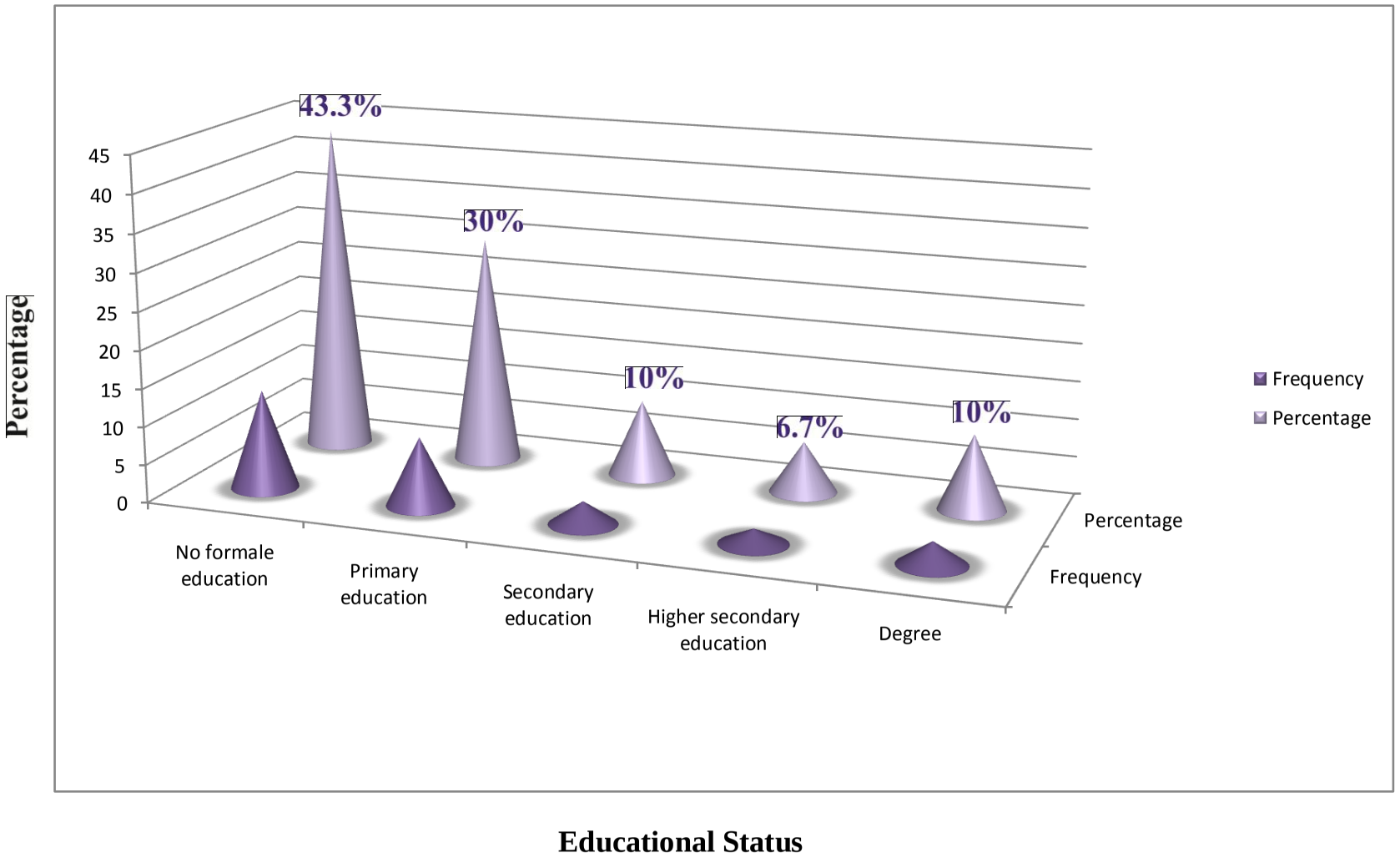


Figure 4.3 Pyramid diagram showing frequency and percentage distribution of extubated patients according to education.

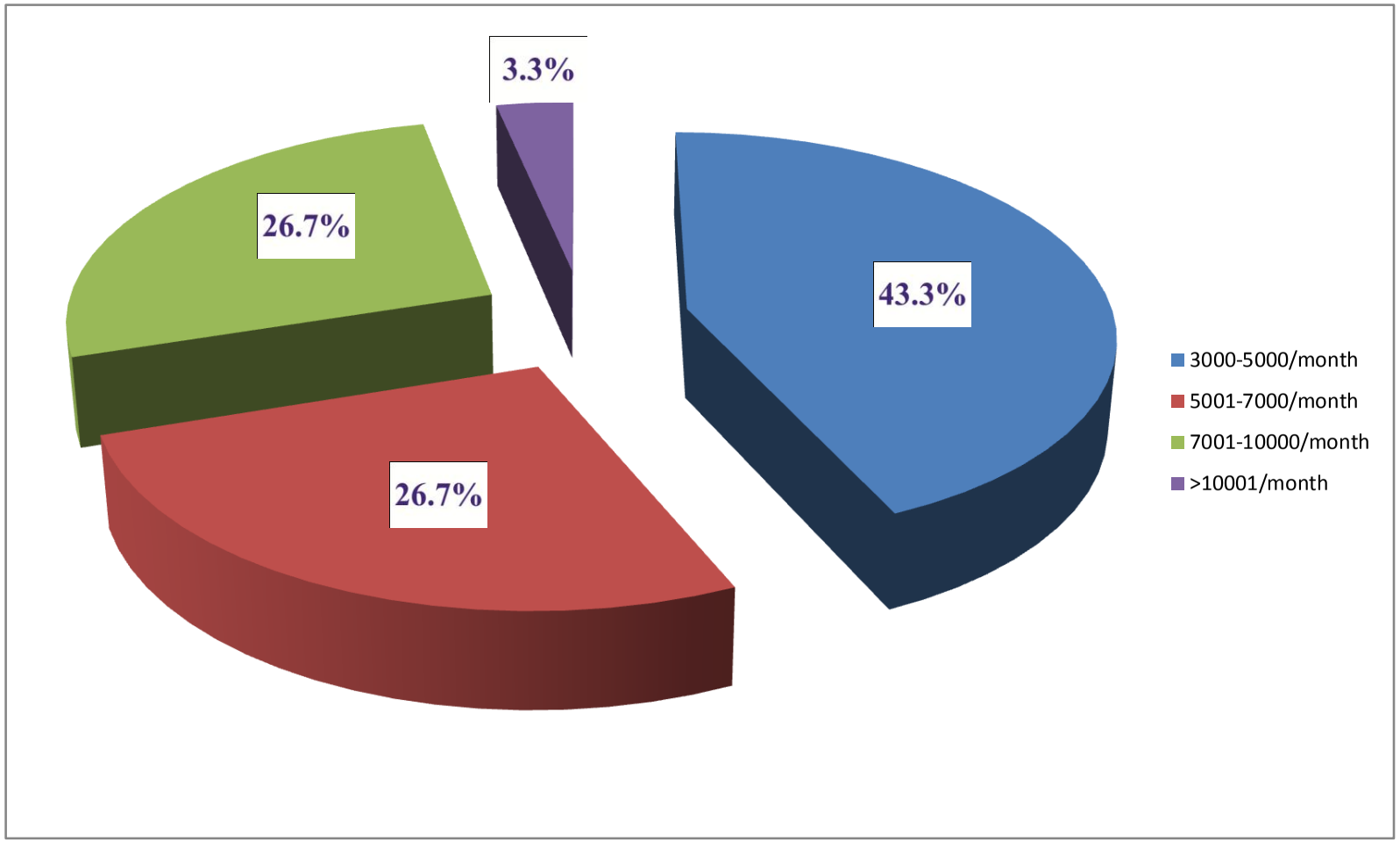


Figure 4.4 Pie chart showing frequency and percentage distribution of extubated patients according to economical status.

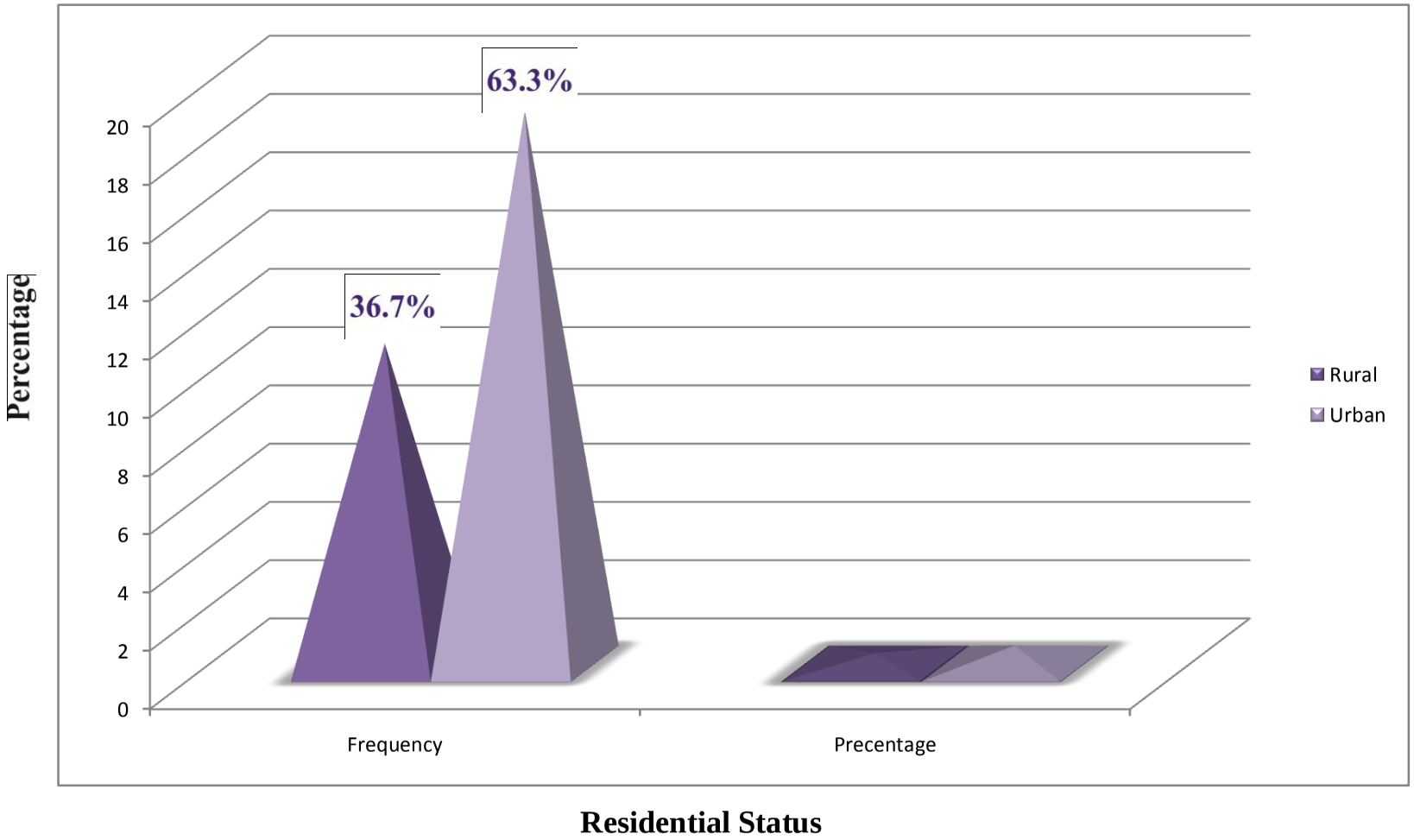


Figure 4.5 Pyramid chart showing frequency and percentage distribution of extubated patients according to residential status.

SECTION B: ASSESS THE LEVEL OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS BEFORE AND AFTER USING OF ALLEN EXERCISE

Table 4.2 Frequency and percentage distribution of pre and post test scores on muscle cramps among extubated patients.

S.No	Flacc pain scale	score	Pre test		Post test	
			Frequency	Percentage	Frequency	Percentage
1.	Relaxed & comfort	0	0	0%	0	0%
2.	Mild discomfort	1-3	0	0%	18	60%
3.	Moderate pain	4-6	14	46.7%	12	40%
4.	Severe discomfort pain	7-10	16	53.3%	0	0%

Frequency and percentage distribution of extubated patients pre test and post test scores of level of muscle cramps that, in pre test majority (53.3%) of extubated, whereas in the post test majority (60%) of extubted patients. Allen exercise was also effective in decrease the muscle cramps among extubated patients .(Table:4.2)

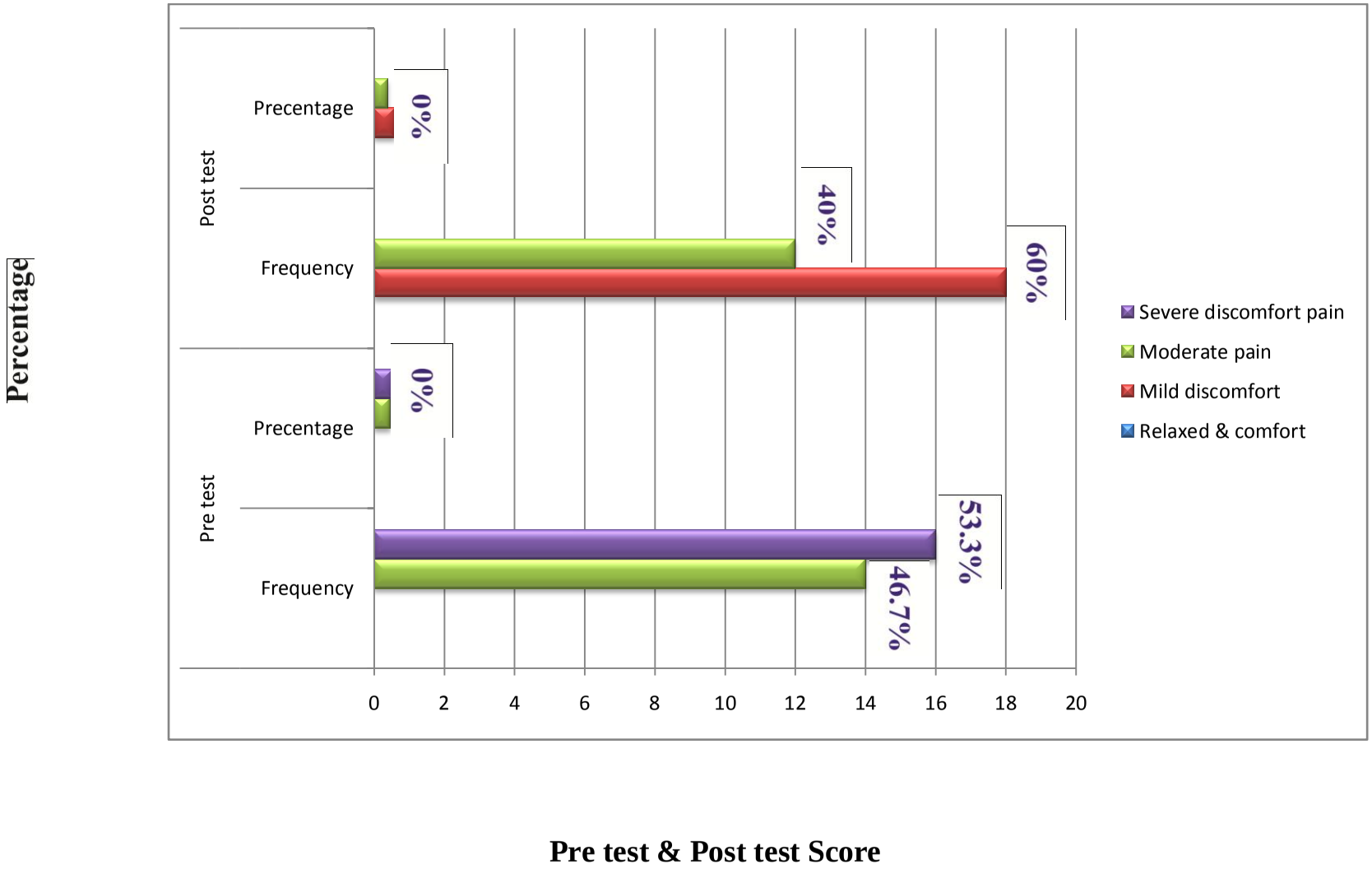


Figure 4.6 Bar chart showing frequency and percentage distribution of pre test and post test according to FLAAC pain .

Section C: Effectiveness of Allen Exercise on Muscle Cramps among extubated patients.

The effectiveness of Allen Exercise on Muscle Cramps among extubated patients. Paired 't' value of pre test and post test scores on Muscle Cramps among extubated patients .

Table 4.3 Paired't' value of pre test and post test scores of Muscle cramps among extubated patients.

S. No	Muscle cramps	Paired 't' value	Table value	Level of significance
1.	Pain	1.93	2.05	P<0.05 Not Significant

Df= 29 Table value=2.05 p<0.05 Not Significant

Paired't' value was calculated to analyze the effectiveness between pre and post scores of Muscle cramps. The paired t' value was 1.93, which is high when compared to table value 2.05. It seems that the Allen exercise was also effective in improve the muscle cramps among extubated patients.(Table 4.3).

Table 4.4 Area wise comparison of mean, standard deviation, and mean percentage of pre test and post test scores on muscle cramps n among extubated patients.

S. No.	Muscle cramps (pain)	Max scores	Extubated patients						Difference in mean percentage %
			Pre test			Post test			
			Mean	SD	Mean %	Mean	SD	Mean %	
1	Pain	10	7.06	1.34	70.6	3.16	0.98	31.6	39

Comparison of mean, SD and mean percentage of pre test and post test scores reveals that in pre test the highest mean score was 70.6% (7.06) in the level of forced vital capacity , whereas in post test mean and mean percentage was 31.6% (3.16). It seems that the pre test was lower than post test which showing Allen exercise is effective reduces muscle cramps and prevent the complications (Table 4.4)

Section D: Association between demographic variables and level of muscle cramps among extubated patients.

Table 4.5 Chi square value of association between post test scores muscle cramps among extubated patients with their selected demographic variables.

S.No	Demographic variables	Df	Table value	$\chi 2$ value	Level of Significance
1.	Age in years	2	2.05	3.929	P<0.05 significant
2.	Gender	2	2.05	0.859	P>0.05 Not significant
3.	Educational status	2	2.05	1.296	P>0.05 Not significant
4.	Occupation status	2	2.05	2.274	P<0.05 significant
5.	Economic status	2	2.05	9.953	P<0.05 significance
6.	Residential Area	2	2.05	4.059	P<0.05 significance
7.	Type of family	2	2.05	2.366	P<0.05 significance
8.	Indication of intubation	2	2.05	2.032	P<0.05 Not significance
9.	Duration of intubation	2	2.05	4.896	P<0.05 significance
10.	Oxygen saturation	2	2.05	3.030	P<0.05 significance

Df =2 Table value =2.05 p< 0.05 Significance p> 0.05 Not significance

Chi- square was calculated to find out the association between the post test scores of extubated patients with their selected demographic variables regarding Allen exercise on muscle cramps. It reveals that there was a significant association (p>0.05) found between the post test scores of pulmonary function and demographic variables like age in years, occupation status, economic status, type of family, duration of intubation and Level of muscle cramps pain. There was no significant association (p<0.05) found between post test scores of muscle cramps when compared to other demographic variables such as gender, educational status, and indication of intubation.

DISCUSSION

CHAPTER-V

DISCUSSION

This chapter deals with the discussion which was based on the findings obtained from the statistical analysis and its relation to the objectives of the study, the conceptual framework and the related literature.

This study was done to assess the effectiveness of Allen exercise of muscle cramps on extubated patients at Care 24 Medical centre & Hospital, Erode. The following were the objective of this study.

OBJECTIVES

1. To assess the level of Muscle Cramps among the extubated patient before practicing Allen exercise.
2. To assess the effectiveness of Allen exercise on Muscle Cramps among extubated patients after practicing Allen exercise.
3. To find out the association between post test score on muscle cramps among extubated patient and their selected demographic variables.

OBJECTIVES 1: To assess the level of Muscle Cramps among the extubated patient before practicing Allen exercise.

Frequency and percentage distribution of background of extubated patients

Distribution of sample, according to their Age, patient were distributed more in 51 – 60 years is 17(56.7%), and least 1 (3.3%) were 31-40 years.

Distribution of sample, according to their sex majority of patient 15 (50 %) belonged to males and 15(50 %) belongs to females

Distribution of sample, according to their education status, patient were distributed more in no formal education education is13 (43.3%), and least 2 (6.7%) were Higher secondary education.

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Distribution of sample, according to their type of family, majority of patient 18 (60%) belonged to nuclear family and 12(40%) belongs to joint family

Distribution of sample, according to their Indication of intubation, patient were distributed more in sudden cardiac arrest and for any surgical purposes is 10(33.3%), and least 5 (16.7%) were unconscious

Distribution of sample, according to their duration of intubation majority of patient 16 (53.3%) belonged to 3-5 days and 11(36.7%) belongs to 1-2 days

Distribution of sample, according to their pain level patient were distributed more in moderate13(43.3%), and least 6 (20%) were severe.

SUMMARY,CONCLUSION,IMPLICATIONS AND RECOMMENDATIONS

CHAPTER -VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter deals with the summary of the study, it's findings, conclusions and the implications for the nursing administration, nursing practice, nursing education and nursing research. This study has started with a few limitations and ends with the suggestions and ends with suggestions and recommendations for research in future.

SUMMARY

An Allen Exercise is a Exercise device used to help patients Decrease the Muscle Cramps of their muscle. It is provided to patients who have had any surgery that, particularly surgery to the lungs themselves, but also commonly to patients recovering from cardiac or other surgery involving extended time under anesthesia and prolonged in-bed recovery. The Allen Exercise is also issued to patients Decreasing Muscle Cramps in the lower extremities .

The patient Activity in from the device as slowly and as deeply as possible, then doing Activity for 2–6 mints. This provides lower limb pressure which pops open and improving circulation. The patient is generally asked to do many repetitions a day while measuring his or her progress by way of the Allen Exercise.

So the investigator studied the **"Effectiveness of Allen Exercise in Reduction of Muscle Cramps among extubated patients in selected hospital. Care 24 medical Central & Hospital in Erode (Dt)."**

1. **OBJECTIVES**

2. To assess the level of muscle cramps among extubated patients before Allen exercise.

3. To assess the effectiveness of Allen exercise on muscle cramps among extubated patients.

4. To find out the association between post test score on Allen exercise.

HYPOTHESIS

H1: There is a significant level of reduction of muscle cramps after Allen exercise.

H2: There is a significant effectiveness of Allen exercise among extubated patients.

H3: There is a significant association between post test score on muscle cramping among extubated patients and selected demographic variable.

The review of literature on related studies helped the investigator to design the methodology, conceptual frame work and find out the tool. The literature reviews for the present study were presented under the following headings.

1. Literature related to muscle cramps.
2. Literature related to Allen exercise
3. Literature related to Allen exercise and extubated patients.

The conceptual frame work for the present study was ANA QA system model. The research design was quasi experimental research design, pre test post test design. Setting chosen to conduct the study was Care 24 Medical Central & Hospital, Erode District.

In this study the population was extubated patient with Muscle Cramps. Total sample size was 30 extubated patients. The sample was selected by using purposive sampling technique. Data was gathered through FLACC Pain grade scale.

The content validity of experts are medical surgical nursing specialists, statistician, and doctor and the tool was modified according to the suggestions and recommendations of the experts.

The reliability of the demographic variables and FLACC grading scale was tested by implementing the tool on 5 extubated patients, in Care 24 Medical Central & hospital Erode, in the same sample area. 'Split half method '(Spearman Brown Formula) is used to treat the reliability of the tool and the tool was found to be reliable. (r=1.06)

The main study was conducted in at Care 24 Medical Central& Hospital, Erode district. The sample are selected by using purposive sampling method among those who fullfill the sampling criteria. Allen Exercises was practising by extubated patient for improve pulmonary function. The data were collected through FLACC Pain grading scale. The data gathered were analyzed by descriptive and inferential statistical method and interpretation was done based on the objective of the study.

FINDINGS

The major findings of the study were presented under the following headings :

Findings related to description of sample characteristics according to their demographic variable.

1. Distribution of sample, according to their occupational status majority of patient 19(63.3%) and least 0 (0%) were unemployment.

2. Distribution of sample, according to their Economic status, patient were distributed more in 3000-5000/month and above is 13(43.3%), and least 1 (3.3%) were >10001/ months.

3. Distribution of sample, according to their residency, majority of patient 19 (63.3%) in urban and 11(36.7 %) belongs to rural.

4. Distribution of sample, according to their type of family, majority of patient 18 (60%) belonged to nuclear family and 12(40%) belongs to joint family.

5. Distribution of sample, according to their Indication of intubation, patient were distributed more in sudden cardiac arrest and for any surgical purposes is 10(33.3%), and least 5 (16.7%) were unconscious.

6. Distribution of sample, according to their duration of intubation majority of patient 16 (53.3%) belonged to 3-5 days and 11(36.7%) belongs to 1-2 days.

7. Distribution of sample, according to their pain level patient were distributed more in moderate13 (43.3%), and least 6 (20%) were severe. (Table 4.1)

- **ASSESS THE LEVEL OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS BEFORE AND AFTER USING OF ALLEN EXERCISE.**

- Frequency and percentage distribution of extubated patients pre test and post test scores of level of muscle cramps that, in pre test majority (53.3%) of extubated, whereas in the post test majority (60%) of extubted patients. Allen exercise was also effective in decrease the muscle cramps among extubated patients .(Table 4.2)

Paired ‘t’ value of pre test and post test scores of Muscle Exercise n among extubated patients in experimental group.

Paired‘t’ value was calculated to analyze the effectiveness between pre and post scores of Muscle cramps. The paired t’ value was 1.93, which is high when compared to table value 2.05. It seems that the Allen exercise was also effective in improve the muscle cramps among extubated patients.(Table 4.3).

Area wise comparison of mean, standard deviation, and mean percentage of pre test and post test scores of level of Muscle Cramps among extubated patients in experimental group.

Comparison of mean, SD and mean percentage of pre test and post test scores reveals that , in pre test the highest mean score was 85.7%(3.43) in the level of forced vital capacity , whereas in post test mean and mean percentage was 38.2%(1.53). In the area pre test mean score was respiratory sound 79%, whereas the post tests mean score was 43.2%. In the area of respiratory rate pre test mean score was 69%%, whereas the post tests mean score was 35%, In the area of oxygen saturation pre test mean score was 85.7%, whereas the post tests mean score was 33.2 %, showing a difference 169.8%. It seems that the pre test was lower than post test which showing Allen exercise is effective in reduction of muscle cramps complications. (Table 4.4)

Association between demographic variables and level of Muscle Cramps among extubated patients in experimental group. Chi square value of association between post test scores Muscle Cramps among extubated patients with their selected demographic variables.

- Chi-square value for age of extubated patients was 4.3
- Chi-square value for gender of extubated patients was 0.61
- Chi – square value for educational status was3.1
- Chi-square value for economic status was6.28
- Chi-square value for occupational status was 4.015
- Chi-square value for type of family of was 4.905
- Chi-square value for Residential area of was 2.27
- Chi-square value for duration of intubation was 3.55
- Chi-square value for indication of intubation was 0.89
- Chi-square value for Level of Muscle cramps was 5.45

CONCLUSION

From the findings of the study it can be concluded that,

- The highest percentage of extubated patients were in the age group of 51-60 years
- The highest percentage of extubated patients were in the gender of male
- The highest percentage of extubated patients were in the educational status of No formal Education
- The highest percentage of extubated patients were in the occupational status of others

- The highest percentage of extubated patients were in the economic status of 3000-5000/month
- The highest percentage of extubated patients were in the residency area of urban
- The highest percentage of extubated patients were in the type of family of nuclear family
- The highest percentage of extubated patients were in the indication of intubation of surgical purpose
- The highest percentage of extubated patients were in the indication of intubation of sudden cardiac arrest
- The highest percentage of extubated patients were in the duration of intubation of 1- 2 days.
- The highest percentage of extubated patients were in the Level of muscle cramps pain in Moderate
- To find out the association between the post test scores of extubated patients with their selected demographic variables regarding Allen Exercise on Muscles Cramps. It reveals that there was a significant association ($p>0.05$) found between the post test scores of Muscle Cramps and demographic variables like age in years, occupation status, economic status, type of family, duration of intubation and Level of Muscle Cramps. There was no significant association ($p<0.05$) found between post test scores of Muscle Cramps when compared to other demographic variables such as gender, educational status, and indication of intubation.

IMPLICATIONS FOR NURSING

The findings of the study have implications in nursing service, Nursing administration, and Nursing research.

Nursing services

- The nursing personnel working in intensive care unit and other recovery units reinforce the health benefits of Allen Exercise to extubated patients and other health care team members.
- Research strongly supports Allen Exercise as an effective tool to Decrease Muscle Cramps complications and prevent re-intubation
- An Allen Exercise is a medical instrument used to Decrease muscle Cramps
- Nurses need to explain to patients how to use Allen Exercise.

Nursing education

- Nursing educator should educate the nursing professionals about the effectiveness of Allen Exercise among extubated patients.
- Nursing educator should influence nursing professionals to review the curriculum of the course in order to include Allen Exercise.
- The researcher educates the extubated patients about Muscle Cramps to Decrease muscle Cramps 2 times a day.

Nursing Administration

- ❖ Nurse administrator can review the policies of using Allen Exercise to Reduction of Muscle Cramps for extubated patients
- ❖ Nurse administrator can encourage the researchers to conduct the research to identify the effectiveness of Allen Exercise.

Nursing research

- ❖ The study may be issued for further reference.

Further large scale study can be done in different settings.

RECOMMENDATIONS

A large scale study can be carried out to generalize the findings.

- ▪ A similar study can be done to measure the physical activities and level of Decrease muscle Cramps among extubated patients.
- ▪ A similar study can be done with the comparison of other alternative therapies like Lower limbs exercises to Decrease Muscle Cramps.

SUMMARY

This chapter deal with the summary of the study, major findings, conclusions, implications of the study in Nursing field and recommendations for future.

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APPENDICES

LETTER REQUESTNG TO CONDUCT A RESEARCH STUDY

From

301512901

ll year M.sc Nursing (Medical and Surgical Nursing)

Anbu college Institute of Nursing and Research

Komarapalayam

To

The Intensivist

Care 24 Hospital

perundurai road

Erode.

Through principal

Respected sir,

SUBJECT: Permission to conduct the research study request regarding

I am a final year M.sc Nursing student of Anbu college Institute of Nursing and Research komarapalayam. I have partial fulfillment of M.sc nursing programme, I have selected the topic mentioned below for the research project which has to be submitted to the Tamil Nadu Dr. M.G.R Medical university.

"A STUDY TO ASSESS THE EFFECTIVENESS OF ALLEN EXERCISEIN REDUCTION OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS AT SELECTED HOSPITAL, ERODE".

Kindly grant me permission to conduct the study at care24 hospital science,

Date: 07.06.2017

Place: Erode

yours faithfully

(301512901)

Dr. K.M.SHIVAKUMAR, MD.,(Gen.Med)Dip,Diab
Care 24
MEDICAL CENTER & HOSPITAL
(Unit of S.K.Medical Fountation (P) Ltd)
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Ph 0424 - 2666666, Mob . 8883311993

Dr. A. JAGATHESHWARAN, M.B.B.S.,
CASUALTY MEDICAL OFFICER,
REG. No: 104141
CARE 24 MEDICAL CENTRE & HOSPITAL
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ERODE - 638 012.

CONTENT VALIDITY CERTIFICATE

Name: MRS. C. GRAZY. M.Sc(N) Ph.D(N)

Designation: READER

Name of the college: DHANVANTRI COLLEGE OF NURSING PALAKKA PALAYAM.

I hereby certify that I have validated tool of M.Anitha II year M.sc nursing student of Medical Surgical Nursing department who is undertaking dissertation on

"A Study to assess the effectiveness on Allen exercise in reduction of muscle cramps among after extubated of ventilator patient at selected hospital, Erode.

C. Grazy

PLACE: ERODE. SIGNATURE OF THE EXPERTS

DATE: 18/4/2017.

DESIGNATION.

Mrs.C.GRAZY.M.Sc.,(N)
Medical Surgical Nursing
RN: 70475 RM:75756

CONTENT VALIDITY CERTIFICATE

Name: Gowri. B

Designation: Reader

Name of the college: Sri Sakthi Mayeil Institute of Nursing & Research.

I hereby certify that I have validated tool of M.Anitha II year M.sc nursing student of Medical Surgical Nursing department who is undertaking dissertation on

"A Study to assess the effectiveness on Allen exercise in reduction of muscle cramps among after extubated of ventilator patient at selected hospital, Erode.

PLACE: Kumarapalayam

SIGNATURE OF THE EXPERTS

DATE:

CERTIFICATE BY THE ENGLISH EDITOR

This is to certify that the dissertation entitled **"A STUDY TO ASSESS THE EFFECTIVENESS IN REDUCTION OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS AT SELETCTED HOSPITAL, ERODE"** is a bonafied research work done by 301312901, II year M.Sc (N) student of Anbu College of Nursing , Kumarapalayam, Namakal.

Mr. Edited this manuscript on behalf of the partial fulfilment of the prerequisite for the degree of **Master of Science in Nursing (Medical Surgical Nursing).**

Signature of the editor

Date:

Place:

CERTIFICATE BY THE TAMIL EDITOR

This is to certify that the dissertation entitled **"A STUDY TO ASSESS THE EFFECTIVENESS IN REDUCTION OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS AT SELETCTED HOSPITAL, ERODE"** is a bonafied research work done by 301312901, II year M.Sc (N) student of Anbu College Nursing of Nursing Kumarapalayam, Nammakal.

Mr. Edited this manuscript on behalf of the partial fulfilment of the prerequisite for the degree of **Master of Science in Nursing (Medical Surgical Nursing).**

Signature of the editor

Date:

Place:

CERTIFICATES BY THE STATISTICIAN

This is to certify that the dissertation entitled **"A STUDY TO ASSESS THE EFFECTIVENESS IN REDUCTION OF MUSCLE CRAMPS AMONG EXTUBATED PATIENTS AT SELETCTED HOSPITAL, ERODE"** has been statistically analysed under the consultation and guidance of the statistician.

Signature of the statistician

Date:

Place:

CONSENT FORM

I understood that whatever you have explained and I accept you to Allen Exercise for improve muscles cramp and as your study participant, with my full co operation.

I am declaring this with my full conscious and my clear knowledge on above.

Date:

Place:

Extubated patient's signature

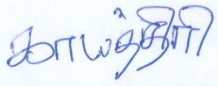
CONSENT FORM

I understood that whatever you have explained and I accept you to Allen Exercise for improve muscles cramp and as your study participant, with my full co operation.

I am declaring this with my full conscious and my clear knowledge on above.

Date:

Place:



Extubated patient's signature

LIST OF EXPERTS

1. **Dr. S. Karupannan, MS, DTCD**

   Founder and managing trustee

   Care 24 Medical Central Hospital

   Erode

2. **Dr. K. Sivakumar MD**

   Managing Director

   Care 24 Medical Central Hospital

   Erode.

3. **Dr. Jagatheswaran**

   Intensivist

   Care 24 medical centre &Hospital

   Erode.

4. **Prof. Mrs. Vijayalakshmi, M.Sc.**

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5. **Mrs. Indira M.Sc Nursing**

   Vice Principal

   Anbu College of Nursing

   Namakkal.

6. **Ms. Heerabetti M.Sc Nursing**

   Anbu College of nursing

   Kumarapalayam

INTERVIEW SCHEDULE AMONG EXTUBATED PATIENTS FOR USING INCENTIVE ALLEN EXERCISE

INSTRUCTION

The interviewer will ask question listed below and place a tick mark against the correct response given by respondent

SECTION –A DEMOGRAPHIC VARIABLES:

1. Age
   a. 21-30 years ☐
   b. 31-40 years ☐
   c. 41-50 years ☐
   d. 51-60 years ☐

2. Sex
   a. Male ☐
   b. Female ☐

3. Educational status
   a. No formal education ☐
   b. Primary education ☐
   c. Secondary education ☐
   d. Higher secondary education ☐
   e. Degree ☐

4. Occupational status
   a. Unemployed ☐
   b. Sedentary ☐
   c. Self employed ☐
   d. Others ☐
   ☐

5. Economic status
   a. 3000 -5000/ month ☐
   b. 5001 - 7,000 / month ☐
   c. 7,001 – 10001 / month ☐
   d. >1,000 above. ☐

6. Residence of patient
   a. Rural ☐
   b. Urban ☐

7. Type of family
    a. Nuclear family ☐
    b. Joint family ☐

SECTION –B ILLNESS STATUS

8. Indication for intubation
    a. Sudden cardiac arrest ☐
    b. Dypoea ☐
    c. Unconscious and Sudden drop in GCS ☐
    d. For any Surgical purpose ☐

9. Duration of intubation
    a. 1-2 day ☐
    b. 3-5 days ☐
    c. 6-8 days ☐
    d. >8 days ☐

10. Level of Muscle Cramps Pain
    a. Mild ☐
    b. Moderate ☐
    c. Severe ☐

OBSERVATION SCHEDULE ON PAIN PARAMETERS

INSTRUCTION:

The patients Muscle Cramps measures will be assessed with the help of Allen Exercise and computed values are taken

S.No	FLACC BEHAIOURAL PAIN SCALE	Pre test values	Post test values
1.	Mild		
2.	Moderate		
3.	Severe		

STRUCTURED OBSERVATION CHECK LIST FOR PERFORMANCE

Instruction to the observer:

Please observe the subject while performing the Allen Exercise carefully and record.

Steps	Performed correctly	Not performed correctly	Remarks
. • Specific exercises intended to improve circulation to the feet and legs. • The lower extremities are elevated to a45to 90 degree angle and supported in this position unit the skin blanches (appears dead white).The feet and legs are then lowered below the level of the rest of the body unit redness appears (care should be taken that there is no pressure against the back of the Knees); finally, the legs are placed flat on the bed for a few minutes. • The length of time for each position varies with the patient's tolerance and the speed with which color change occurs. Usually the exercises are prescribed so that the legs are elevated for 2 to3minutes,down 5to 10 minutes, and then flat on the bed for 10 minutes. 1.			

Put a cross (X) mark in the column if the subject has performed the Allen Exercises on the particular day. DAY 1 2 3 4 5 6 7

STRUCTURED OBSERVATION CHECKLIST FOR PRACTISE

S.NO	DAYS	SCHEDULE		REMARKS
		MORNING	EVENING	
1.	1ST			
2.	2nd			
3.	3th			
4.	4th			
5.	5th			
6.	6th			
7.	7th			

Pain parameter and their grading level

GRADE	RANGE
Normal	0
Mild	1-3
Moderate	4-6
Severe	7-10

TEACHING OF ALLEN EXERCISE FOR EXTUBATED CLIENTS

Topic	: Burger Allen Exercise
Group	: Extubated patients.
Method of teaching	: Lecture cum demonstration.
Medium of instruction	: Tamil.
Duration	: 15 mintues.
Audio visual aids	: Demonstration

GENERAL OBJECTIVES

To acquire adequate knowledge about the importance of Allen Exercise

To improving muscle cramping among extubated patients

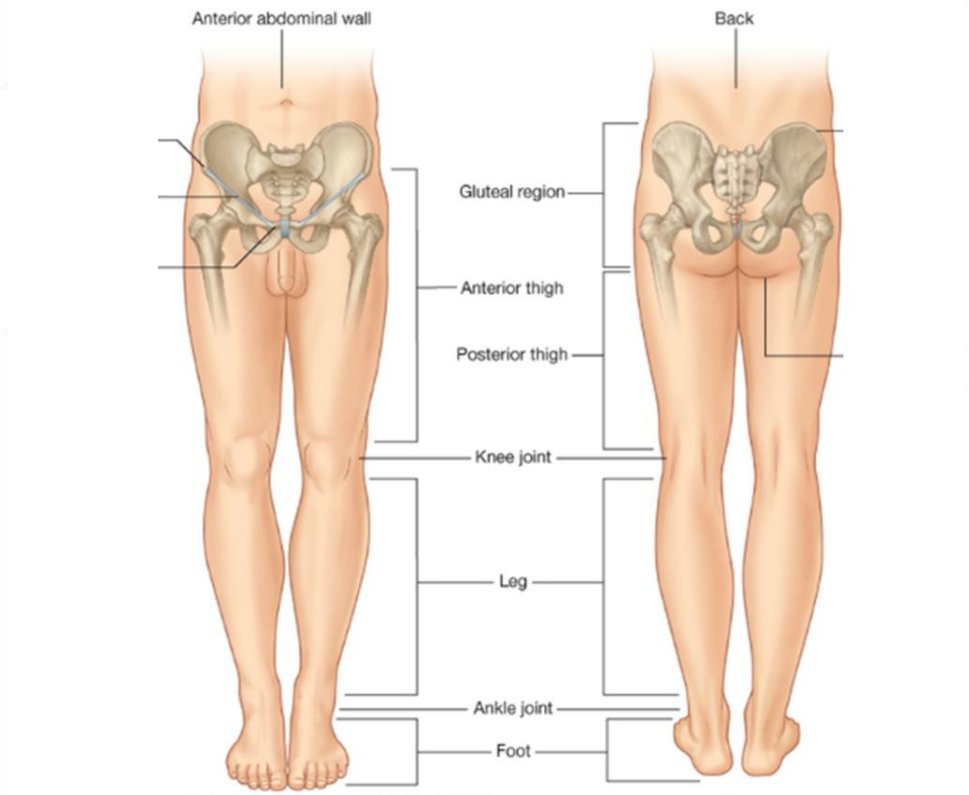
To develop their desired skill for practicing.

SPECIFIC OBJECTIVES:

- Introduce the topic.
- Learn the anatomy and physiology of lower limbs
- Describe the mechanism of Allen exercise
- List down the steps of Allen exercise
- Define the Allen exercise
- Describe the instruction for patient prior to use Allen exercise.
- Explain the instruction of each step of parameter of Allen exercise.

SPECIFIC OBJECTIVES	CONTENT	TEACHER – LEARNERS ACTIVITY
Introduce the topic	INTRODUCTION ALLEN EXERCISES: Specific exercises intended to improve circulation to the feet and legs. The lower extremities are elevated to a45to 90 degree angle and supported in this position unit the skin blanches (appears dead white).The feet and legs are then lowered below the level of the rest of the body unit redness appears (care should be taken that there is no pressure against the back of the Knees); finally, the legs are placed flat on the bed for a few minutes. The length of time for each position varies with the patient's tolerance and the speed with which color change occurs. Usually the exercises are prescribed so that the legs are elevated for 2 to3minutes,down 5to 10 minutes, and then flat on the bed for 10 minutes.	Teachers Wishes the learners and introduce the topic. Learners: Listens and observes.
Learn the anatomy and physiology of Lower Limb Muscles	ANATOMY AND PHYSIOLOGY OF LUNGS: The biggest muscle of the body are found here, since their function is largely in weight bearing. The lower parts weight in walking, running etch. LOWER LIMB: • Skeleton(homologous with upper limb) • Muscle-anterior, posterior compartments • Nerves-Sciatic, femoral	Teacher: Explains the anatomy and physiology of lower Limb Muscles Learners: Listens and observers.

Learn about the Lower Limb Muscles	• Surface anatomy THE LOWER LIMB: <u>Consist of;</u> • The gluteal region (buttocks) • The thigh • The leg, and • The foot.	Teacher: Explains the lower Limb Muscles Learners: Listens and observers.

Describe the Function of muscles. List down the types of Joint	 FUNCTION S OF THE LOWERLIMB: SUPPORT THE BODY WEIGHT; The ligaments at the hip and knee joints facilitate locking of these joint therefore reducing the amount of muscular energy required to maintain a standing position. <u>LOCOMOTION:</u> To move the body through space. This involves integration of movements at all joint of the lower limb to place the foot on the ground and move the	Teacher: Describe the Function of muscles. Learner: Listens. Teacher: List out types of Joint. Explains the type of Joint. Learners: Listens.

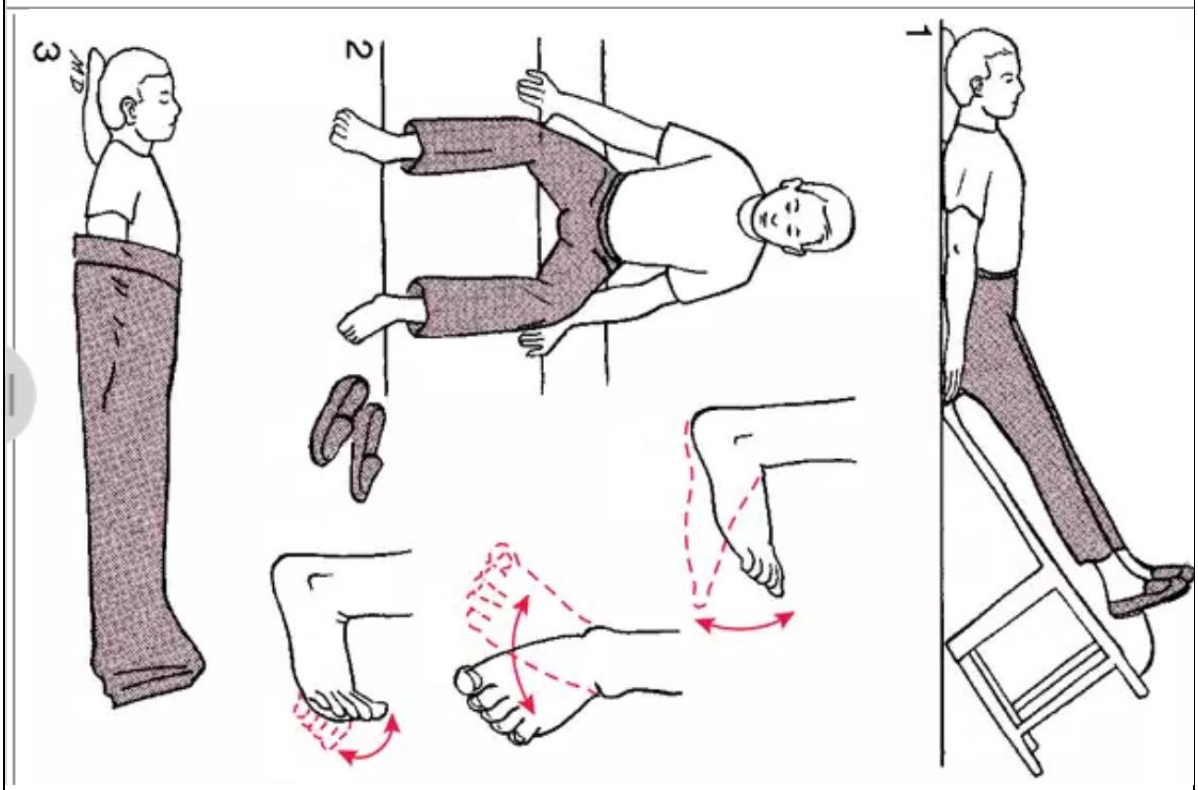
<table>
<tr>
<td>Describe the muscle compartment.</td>
<td>body over it.
<u>BONES:</u>
HIPBONE-pelvis
THIGH BONE-femur
LEG BONES-fibula
<u>JOINTS:</u>
<table>
<tr><th>JOINT</th><th>Bones</th><th>Type</th><th>Movements</th></tr>
<tr><td>Hip joint</td><td>Pelvis and femur</td><td>Ball and socket</td><td>Flexion, exter abduction, adduction and circumduction</td></tr>
<tr><td>Knee joint</td><td>Femur, tibia and patella</td><td>Hinge</td><td>Flexion and extension</td></tr>
<tr><td>Ankle joint</td><td>Tibia, fibula and talus</td><td>Hinge</td><td>Plantarflexion dorsiflexion</td></tr>
</table>
MUSCLES:
<table>
<tr><th>Muscle Compartment</th><th>Actions</th></tr>
<tr><td>Gluteal region</td><td>Extend, abduct and rotate the thigh at the hip joint.</td></tr>
<tr><td>Thigh</td><td></td></tr>
</table>
</td>
<td>Teacher:
Describe the muscle compartment.
Learners:
Listens</td>
</tr>
</table>

Describe the mechanism of Skeletal muscle	• Anterior compartment	Extend the leg at the knee joint.	
	• Posterior compartment (hamstrings)	Extend the thigh at the hip joint and the leg at the knee joint.	flex Teacher: Describe the
	• Medial compartment	Adduct the thigh at the hip joint.	mechanism of skeletal muscle
	Leg		Learners: Listens.
	• Anterior compartment	Dorsiflex the foot and extend the digits.	
	• Posterior compartment	Plantarflex the foot and flex the digits.	
	• Lateral compartment	Evert the foot.	
	Foot	Support the arches of the foot.	
	FOOT: BONES: Calceneus 6 tarsal bones a. Talus b. Navicular c. Cuboid		

List down the types of contraction	d. Medial, intermediate and later cuneiforms 5 metatarsal bones 14 phalanges **MECHANISM OF SKELETAL MUSCLE:** Locomotion ↓ Vasoconstriction and vasodilatation ↓ Peristalsis ↓ Cardiac motion ↓ Posture maintenance ↓ Heat generation	Teacher: Describe the types of contraction Learners: Listens.
Define the Allen exercises	TYPES OF CONTRACTION: Isotonic: When a muscle contracts and its ends are pulled closer Together Isometric: When a muscle contracts but attachments do not move Isokinetic: When the force a muscle generates is less than that required to move or lift an object, the contraction is called isokinetic. MUSCLE REPONSE: 1. All-or-none response	Teacher: Define the Allen exercises Learners: Listens.

Explain and demonstrate the steps and procedure of the Allen exercises	2. If a muscle fiber contracts at all, it will contract completely. 3. Motor units respond in an all –or-none manner. • Threshold stimulus -is the minimal stimulus needed to elicit a muscular contraction. • Twitch-single, short contraction reflecting stimulation of some • motor units in a muscle. • Latent period- is the between stimulus and responding muscles contraction. • Refractory period-During his period immediately following contraction, a muscle can not respond. ALLEN EXERCISES: Specific exercises intended to improve circulation to the feet and legs. The lower extremities are elevated to a45to 90 degree angle and supported in this position unit the skin blanches (appears dead white).	Teacher: Explain and demonstrate the steps and procedure of the Allen exercises. Learners: listens
Explain about the use of Allen exercises	**STEPS AND PROCEDURE** • Specific exercises intended to improve circulation to the feet and legs. • The lower extremities are elevated to a45to 90 degree angle and supported in this position unit the skin blanches (appears dead white).The feet and legs are then lowered below the level of the rest of the body unit redness appears (care should be taken that there is	Teacher: Explain about of the Allen exercises. Learners: listens

	no pressure against the back of the Knees); finally, the legs are placed flat on the bed for a few minutes. • The length of time for each position varies with the patient's tolerance and the speed with which color change occurs. Usually the exercises are prescribed so that the legs are elevated for 2 to3minutes,down 5to 10 minutes, and then flat on the bed for 10 minutes. **INSTRUCTION FOR PIROR TO USE:** 1. Elevate feet on padded chair or board for ½ to 3 minutes 2.Sit in relaxed position while each foot is flexed and extended the pronated and supinated for 3minutes .The feet should become entirely pink. If the feet are blue or painful, elevate them and relax as necessary. 3.Lie quietly for 5 minutes ,keeping legs warm with a blanket.	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2
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USES

1. It provides the optimum supply of circulation to the feet and legs.
2. Increase the blood supply
3. Improve the lower limb activity
4. Facility for easy fatigability and foot and leg cramps.

CONCLUSION

Allen exercises, also known as sustained maximal circulation devices, are used to promote lower activity.

Allen exercises is beneficial for patients affected in this way as it promotes lower activity, which will aid their recovery. Nurses play an important role in teaching patients how to use an Allen exercises and the underlying principles.

பயிற்சி வினாக்கள்

1. வயது?

அ) 21–30 வருடங்கள் ( )

ஆ) 31–40 வருடங்கள் ( )

இ) 41–50 வருடங்கள் ( )

ஈ) 51 வருடங்கள் ( )

2. பாலினம்?

அ) ஆண் ( )

ஆ) பெண் ( )

3. படிப்புத் தகுதி?

அ) கல்வியறிவில்லை ( )

ஆ) முதன்மைக்கல்வி ( )

இ) இரண்டாம் கல்வி ( )

ஈ) மேல் நிலைக்கல்வி ( )

உ) பட்டதாரி ( )

4. தொழில்?

அ) வேலை இல்லை ( )

ஆ) தினக்கூலி ( )

இ) சுயதொழில் ( )

ஈ) மற்றவை ( )

5. மா வருமானம்?

அ) 3000/- 5000/- மாதம் ( )

ஆ) 5001/- 7000/- மாதம் ( )

இ) 7001/- 10000/- மாதம் ( )

ஈ) > 10001/- மாதம் ( )

6. இருப்பிடம்?

அ) கிராமப்புறம் ( )

ஆ) நகர்புறம் ( )

7. குடும்பம்?

அ) தனிக்குடும்பம் ( )

ஆ) கூட்டுக்குடும்பம் ( )

8. செயற்கை சுவாசம் பொருத்தக் காரணம்?

அ) மாரடைப்பு ( )

ஆ) மூச்சு விடுதலில் சிரமம் ( )

இ) சுயநினைவில்லாமை ( )

ஈ) அறுவை சிகிச்சை செய்வதற்காக ( )

9. செயற்கை சுவாசம் பொருந்திய காலம்?

அ) 1 – 2 நாட்கள் ( )

ஆ) 3 – 5 நாட்கள் ( )

இ) 6 – 8 நாட்கள் ( )

ஈ) > 8 நாட்கள் ( )

10. தசைவலியின் தன்மை?

அ) மிதமான வலி ( )

ஆ) அதிக வலி ( )

இ) தீவிர வலி ( )

ஏலன் பயிற்சி

ஏலன் முழங்கால் செயல்முறை விளக்கம்

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தலைப்பு	:	ஏலன் கால்களுக்கான பயிற்சி
கூட்டம்	:	நுரையீரலிருந்த குழாய் எடுத்த நோயாளிக்கு
பாடம் நடத்தும் முறை	:	விரிவுரை மற்றும் செயல்முறை
மொழி	:	தமிழ்
நேரம்	:	பதினைந்து நிமிடங்கள்
ஒளி ஒளிசாதனங்கள்	:	செயல்முறைகளின் மூலம்

பொதுவான குறிக்கோள்:

- ஏலியன் பயிற்சி பற்றிய முக்கியத்துவத்தை பற்றி அறிந்துக் கொள்ளுதல்
- முழங்கால் இழுத்து பிடிக்கும் வலிகளை குறைத்தல் (செயற்கை சுவாசம் எடுக்கப்பட்ட நோயாளிகளுக்கு)
- முழங்கால் இழுத்து பிடிக்கும் வலிகளை குறைப்பதற்கான பயிற்சிகளை செயல்முறைகளின் மூலம் விளக்குதல்

தனித்துவ குறிக்கோள்கள்:

- தலைப்பை அறிமுகப்படுத்துதல்
- முழங்கால் பிடிப்பிற்கான அடிப்படை உருவ மற்றும் செயல்பாட்டினை நன்கு உணர்தல்
- இயங்கும் முறை பற்றி விளக்குதல்.
- ஏலன் பயிற்சிகளை வகையினை பட்டியலிடுதல்
- ஏலன் பயிற்சி கருவியினை வரையறுத்தல்.
- ஏலன் பயிற்சிகளை உபயோகிக்கும் முன் கூற வேண்டிய குறிப்புகள்.
- ஏலன் பயிற்சிகளை உபயோகிக்கும் செயல் முறைகளை பற்றி விளக்குதல்
- ஏலன் பயிற்சிகளின் பயன்கள்
- முடிவுரை.

குறிப்பிட்ட குறிக்கோள்கள்	பொருள்	பாடம் நடத்துவது கற்றுக் கொள்வதன் செயல்கள்
தலைப்பை அறிமுகப்படுத்துவது	<u>முன்னுரை:</u> ஏலன் பயிற்சிகள் முக்கியமாக முழங்கால்களின் இரத்த ஓட்டங்களை,மற்றும் பாதங்களுக்கும் அதிகரிக்கச் செய்கிறது. இந்த பயிற்சிகளை 45லிருந்து 90டிகிரி கோணங்களில் செய்ய வேண்டும். ஊதவியான நிலையில் உடல் அமைந்திருக்க வேண்டும். அதே சமயத்தில் கால் மற்றும் கால்பாதங்களும் சரியான நிலையில் கீழே அமைந்திருக்க வேண்டும். இறுதியாக பயிற்சிகள் முடிந்தவுடன் சிறிது நேரம் சமமான நிலையில் படுத்திருக்க வேண்டும். நோயாளிகள் தாங்கும் திறனுக்குகேற்ப பயிற்சிகளை செய்தால் போதுமானது. (ஏதாவது நிறம் மாற்றம் ஏற்படுகிறதா என்று கண்காணிக்க வேண்டும). இந்த பயிற்சி கால் உயர்ந்த நிலையில் 2-3 நிமிடங்கள் இருக்க வேண்டும். கால்கள் தொங்கிய நிலையில் 5-10 நிமிடங்கள் இருக்க வேண்டும். சமமான நிலையில் உடல் 10 நிமிடங்கள் இருக்க வேண்டும்.	கற்பிப்பவர்: பாடத்தைப்பற்றி அறிமுகப்படுத்து <u>கற்றுக் கொள்பவர்:</u> 1. கவனித்தல் 2. கேட்டல்

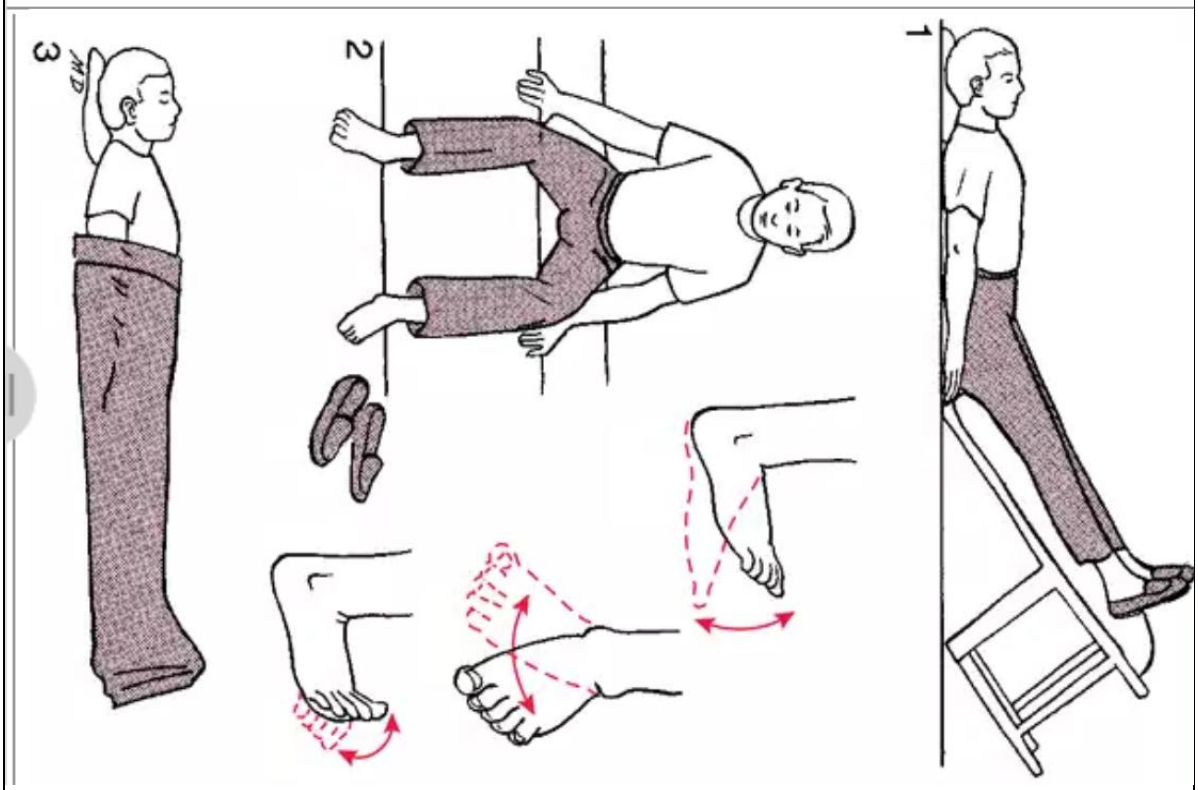
முழங்கால்களின் உடற்கூறு மற்றும் உடல் செயலியல் கீழ்தசை இயங்கும் முறை கீழ் முழங்கால்களை வகையினை பட்டியலிடுதல்	<u>முழங்கால்களின் உடற்கூறு மற்றும் உடல் செயலியல்</u> முழங்கால்களின் தசை பாகங்கள் இரண்டு பாகங்களாக பிரிக்கப்பட்டு அமைந்துள்ளது. இவை 1.மேல் தசை பாகங்கள் 2. கீழ்தசை பாகங்கள் என்று இரண்டு பாகங்களாக பிரிக்கப்பட்டுள்ளது. மேல்தசை பாகங்களும், கீழ்தசை பாகங்களும் (தசைகளாலும், எலும்புகளாலும் அமைந்திருக்கிறது) <u>கீழ்தசை பாகங்கள் இயங்கும் முறை</u> பாகங்கள் அசைதல் ⇩ இரத்தக்குழாய்கள் சுருங்குதலும் விரிதலும் ⇩ மாற்றுமுறைகள் நடைபெறுகிறது ⇩	கற்பிப்பவர்: <u>முழங்கால்களின்</u> <u>உடற்கூறு மற்றும் உடல்</u> <u>செயலியல்</u> <u>கற்றுக் கொள்பவர்:</u> 1. கவனித்தல் 2. கேட்டல் கற்ப்பவர்: கீழ்தசை இயங்கும் முறை பற்றி விளக்குதல் <u>கற்றுக் கொள்பவர்:</u> 1. கற்றல் 2. கேட்டல்

	இருதயத்திற்கான இரத்த ஓட்டங்களும் நடைபெறுகிறது  உடல்கள் சுடான நிலையில் வைத்திருப்பதற்கு உதவுகிறது தசைகளின் வகைகள்:	
தசைகளின் வகைகள்:	தசைகள் மூன்று வகைப்படும்: ஐசோடோனிக் - தசைகள் சுருங்கும் நிலையில் இரத்த ஓட்டங்களை ஒன்று சேர்க்கிறது. ஐசோமெட்ரிக் - தசைகள் சுருங்கும் நிலையில் அழுத்தமாக ஒட்டிக்கொள்கிறது விலகுவதில்லை. ஐசோகைநெட்டிக் - தசைகள் இயங்கும்பொழுது தேவைக்கேற்ப இரத்த ஓட்டங்களைக் கொடுக்கிறது.	கற்ப்பவர்: கீழ்தசைகயை வகையினை பட்டியலிடுதல் கற்றுக் கொள்பவர்: 1. கற்றல் 2. கேட்டல்
ஏலன் முழங்களின் பயிற்சி வரையறுத்தல்	ஏலன் முழங்களின் பயிற்சி வரையறுத்தல்: ஏலன் பயிற்சிகள் முக்கியமாக முழங்கால்களின் இரத்த ஓட்டங்களை,மற்றும் பாதங்களுக்கும் அதிகரிக்கச் செய்கிறது. இந்த பயிற்சிகளை 45லிருந்து 90டிகிரி கோணங்களில் செய்ய வேண்டும்.	கற்பிப்பவர் ஏலன் முழங்களின் பயிற்சி வரையறுத்தல் கற்றுக் கொள்வர் 1. கவனித்தல் 2. கேட்டல்

ஏலன் முழங்கால் பயிற்சி உபயோகிக்கும் முன் கூற வேண்டிய குறிப்புகள்	<u>ஏலன் முழங்கால் பயிற்சிகளின் குறிப்புகள்</u> • ஏலன் பயிற்சிகள் முக்கியமாக முழங்கால்களின் இரத்த ஓட்டங்களை,மற்றும் பாதங்களுக்கும் அதிகரிக்கச் செய்கிறது. • இந்த பயிற்சிகளை 45லிருந்து 90டிகிரி கோணங்களில் செய்ய வேண்டும். • ஊதவியான நிலையில் உடல் அமைந்திருக்க வேண்டும். • அதே சமயத்தில் கால் மற்றும் கால்பாதங்களும் சரியான நிலையில் கீழே அமைந்திருக்க வேண்டும். • இறுதியாக பயிற்சிகள் முடிந்தவுடன் சிறிது நேரம் சமமான நிலையில் படுத்திருக்க வேண்டும். • நோயாளிகள் தாங்கும் திறனுக்குகேற்ப பயிற்சிகளை செய்தால் போதுமானது (ஏதாவது நிறம் மாற்றம் ஏற்படுகிறதா என்று கண்காணிக்க வேண்டும).	கற்பிப்பவர்: ஏலன் முழங்கால் பயிற்சி உபயோகிக்கும் முன் கூற வேண்டிய குறிப்புகள். கற்றுக் கொள்பவர் 1. கவனித்தல் 2. கேட்டல்

முழங்கால் பயிற்சி செயல்முறைகளை பற்றி விளக்குதல்	• இந்த பயிற்சி கால் உயர்ந்த நிலையில் 2-3 நிமிடங்கள் இருக்க வேண்டும். • கால்கள் தொங்கிய நிலையில் 5-10 நிமிடங்கள் இருக்க வேண்டும். • சமமான நிலையில் உடல் 10 நிமிடங்கள் இருக்க வேண்டும். முழங்கால் பயிற்சிகளின் வழிமுறைகள் <u>முழங்கால் பயிற்சி உபயோகிக்கும் முன் கூற வேண்டிய குறிபுகள்:</u> கால்களை உயர்த்தி நாற்காலி அல்லது பலகைகளை ½ மற்றும் 3 நிமிடங்கள் கால்கள் உயர்ந்த நிலையில் இருக்க வேண்டும்.	கற்ப்பிப்வர்: முழங்கால் பயிற்சி செயல் முறைகளை பற்றி விளக்குதல் <u>கற்றுக் கொள்வர்:</u> 1. கவனித்தல 2. கேட்டல்

	1. நிமிர்ந்து உட்கார்ந்த நிலையில் கால்களை நிதான நிலையில் கால்களை நீட்டிய நிலையில் மற்றும் நேர் நிலையில் 3 நிமிடங்கள் இருக்கவும். 2. ஏதாவது நிறமாற்றங்கள் (சிவந்த நிலையில் மற்றும் நீலநிலையில் அல்லது கால் வலிகலோடு காணப்பட்டால்) கால்களை நிதான நிலையில் வைத்துக்கொள்ளவும். 3. படுத்த நிலையில் 5 நிமிடங்கள் கால்களை போர்வைகளால் மூடப்பட்டு மிதமான சூடுடன் வைத்துக்கொள்ளவேண்டும்.	


3
2
1

முழங்கால்களின் பயிற்சிகளின் பயன்கள்	<u>பயன்கள்:</u> 1. இது கால்பாதங்களின் இரத்த ஓட்டங்களை அதிகரிக்கிறது. 2. அதிக அளவு இரத்த ஓட்டங்களை அதிகரிக்கிறது. 3. இது முழங்கால்களின் செயல்களை அதிகரிக்கிறது. 4. முழங்கால்களில் ஏற்படும் இழுத்துப்பிடித்தல்கள் வராமல் தடுக்கிறது. முடிவுரை : முழங்கால் பயிற்சிகள் இரத்த ஓட்டங்களையும் செயல்பாடுகளையும் அதிகரிக்கிறது. ஏலன் முழங்கால் பயிற்சிகள் நோயாளிகளுக்கு கால்பிடிப்புகளை குறைக்கிறது. நோயாளிகள் பயிற்சிகளில் ஈடுபடும்பொழுது செவிலியர்கள் முக்கிய பணியாற்றுகிறார்கள் மற்றும் உதவியாளர்களாவும் இருக்கிறார்கள்.	<u>கற்பிப்பவர்:</u> முழங்கால்களின் பயிற்சிகளின் பயன்கள். <u>கற்றுக் கொள்பவர்:</u> 1. கவனித்தல் 2. கேட்டல்

PHOTOGRAPHS

thank you!